The Builder.

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WE are anxious that the committee of the House of Commons appointed to investigate the [want of] constitution, [mis] management, and [strange] proceedings of the Schools of Designs, should get earnestly to work; and, still more so, that the result of the inquiry may be reformation and satisfactory progress. For some years we have endeavoured strenuously and continuously, by directing attention to abuses in the schools, and to the lamentably small results of a large outlay upon them, to lead to improvement. We were very unpopular in some quarters in consequence,—THE BUILDER was positively a forbidden book at one time in Somerset House,—but our opinions became ultimately the universal opinions, and a certain amount of good was done.

We will not compare the present condition of the London school with what it was at the time to which we are referring, when undisguised incompetence reigned, and entire disorganisation resulted. Still, the proceedings appear to be far from satisfactory in some respects, and the issue unsatisfactory in all. In architecture we want artistical operatives, and we have been looking to our schools of design to produce them. Where are they? Echo derisively answers, where? The *Journal of Design*, which has commenced an onslaught, says,—

"What a specimen these schools afford of Government administration, when we recollect that there has been expended, in one way or another, by Parliamentary grants and local subscriptions, &c., something near 100,000*l.* on these schools, and that it is a doubt whether it be possible to instance, out of all last year's manufactures, any ONE single useful article of *first-rate* quality which is the unassisted design of a pupil who has been *wholly* educated in these schools! We may be wrong in the sweeping doubt here implied, and we shall be glad to be proved to be so; and we shall be greatly obliged to manufacturers and designers who will point out to us any articles of manufacture of original design, produced within the last twelve months, as the best fabrics of their class, which have been designed by a student educated altogether in the school,—one who has studied in the school, say not less than four years, and who does not exceed the age of twenty-five years. We do not want to be informed of the designs of those who were practising designers before they entered the school, and had mastered the difficulties and rudiments of their profession before they entered it. We want to know the works of the real scholars of the school."

We have again and again shown that to call the establishment a School of Design was ridiculous, it was simply a drawing school—design was not thought of; it was even asserted by some in authority that to consider it in the system of instruction was quite unnecessary,—drawing, and merely drawing, was all they had to think of.

That this is not the opinion there now, may be gathered from some of the very good lectures recently delivered to the students. Thus, Mr. Dyce said;—

"The power of imitation, that is to say, skill in drawing, painting, modelling any given object,—although to a great extent the ultimate purpose of the instruction in an academy of fine art, is, in a School of Design, but *the means to an end.* The opposition formerly made to introducing into this school certain branches of instruction, which were reckoned proper only to academies of fine art, was partly grounded on the supposition that, if the means of elementary study were unlimited, the effect of the school would be to overflow the country with artists; and so it was thought that if these branches were excluded, or if not excluded, were taught only up to a certain point, the school would be made to keep its due place in the scale of art. Now, although these views arose from an indistinct apprehension of the purpose of the school, and of the means required to effect it, it must be admitted that the fear lest the means should be mistaken for the end, was not without reason. If the school were to stop short at the point of having taught the art of drawing, painting, or modelling—that is to say, if the studies terminated in a purpose which is common to it and general drawing-schools, not only would the fears I have spoken of be realised, but the school would, in point of fact, have abandoned its specific claim on public support. It was established by Government, *not to afford general instruction in art, but to teach the special art of designing ornament, and its application to manufactures and decoration.* The proper business of the school, indeed, may be said to commence where other schools of art leave off; at all events, however much, in certain respects, the school occupies ground common to it and to general drawing-schools, it has beyond this the definite and specific object of *cultivating ornamental art. This is its peculiar province: this is its primary business and occupation.*"

It is something to find that this apparently obvious fact has been at last arrived at. We shall keep an eye on the course of proceedings before the committee.

We should be glad to know what has become of the Female School, formerly of Somerset House. It was sent into lodgings somewhere in the Strand,—on the same grounds, it would seem, which led boards of guardians to send pauper children to Tooting, and has never been heard of since.

Concerning the provincial schools we have lately received several communications, including an amusing budget of complaints from *Paisley*, written by a resident manufacturer; but as they are wholly *ex parte*, they need inquiry before publication.

In Glasgow, a fortnight ago, the annual meeting of the School of Design was held, and the committee said in their report that the number of students had increased (there are now 856, male and female), that the works of art had been arranged by the present master (Mr. Wilson), and that arrangements had been made to render the Library of Reference there accessible to designers, for whom a commodious apartment had been appropriated, where they might study four days in the week.

To the Sheffield School of Design the Government grant has been increased from 200*l.* to 550*l.* per annum, if our informant is correct, and two assistant masters have been appointed in consequence.

We are so little used to Government grants in aid of art, that the sums appropriated to the School of Design seem large. If it were well applied, however, and produced due fruit, the public, so far from objecting to such votes, would willingly see them increased. A correspondent of the *Literary Gazette* gives a list of sums just voted by the National Assembly of France, for the encouragement of science and art, including the following, which contrasts strongly with the doings of our own Government in that respect:—

	Francs.
"*Etablissement des Beaux Arts*.....	447,000
Personnel of the National Museums	148,700
Matériel of ditto	151,700
Works of art and decorations of public edifices; *including* the purchase of pictures and statues for the *Louvre*	950,000
Preservation of ancient historical monuments	750,000
Encouragements and subscriptions to the Fine Arts	186,000
Annual indemnities or temporary assistance to artists, dramatic authors, musical composers, and their widows	137,700
Institut National	581,300
Museum of Natural History	486,350
Astronomical establishments	121,760
Bibliothèque Nationale.....	283,600
Ditto, extraordinary credit	60,000
Service of public libraries.....	222,300
Literary subscriptions	170,000
Learned societies	50,000
Voyages, scientific missions, public lectures	112,000
Encouragement and assistance to men of science and literary men	197,400
Unpublished documents on natural history	150,000
Subvention to *Caisses de retraite*	500,000
Re-impression or publication of scientific works.....	1,939

with much more for public education, faculties of theology, medicine, law, &c."

In other parts abroad, they seem more inclined to dissipate than to collect works of art,—to knock down rather than build up. The revolutionary government of Rome are said to be in treaty for the sale of the Apollo Belvidere to American agents, and of many other treasures of art garnered in the Eternal City, to English and French speculators. The *Times*, in a leading article, deprecated the removal of the inestimable monuments which form the chief glory of that city, and with the view of preventing Englishmen from being a party in the disgraceful proceeding, urged, that should the legitimate government be restored, it would be difficult to defend a possession which had been acquired with a full knowledge of the circumstances attending the sale. "It appears to us," continues the journalist, "that the purchase of these monuments from Mazzini's committees can no more be justified than the purchase of diamond necklaces from those gentry who at this season of last year were so comfortably housed in the Tuileries. The buyers of this stolen jewellery were unhesitatingly prosecuted, and if the buyers of pictures and statues escape a similar summons, it will be owing less to the essential difference of their acts than to the fortunate difference of their position. It would be the height of injustice if through the interested concert of those who should be more uprightly minded, such a gang of desperadoes as that which now lords it over Rome, should be enabled during their ephemeral usurpation to inflict so grievous a loss upon their country, and to damage so irreparably the government which will presently supersede them. We hope better from the generosity, if not from the prudence of Englishmen."

A friend writing us on the subject of art, says, with reference to these remarks,—"I was amused the other day with reading the leading article of the *Times* on the shameful proceedings of the anti-papal government of Rome in disposing of the 'works of art,

just as if these works had been indigenous productions, and not the collective plunder of other countries. If King Otho had purchased the Apollo surely it would have been no extraordinary act of vandalism to have transported it to Greece and set it up in Athens? What gives Italy the prescriptive right of possession in the higher productions of the art of foreign nations? Some day or other, some thousand years hence, we may have an American editor lamenting that the confederated republics of Greece have repurchased from the Provisional Government of Britain the Elgin marbles, and certainly they are as much art-products of England as the Apollo of Rome."

We cannot agree with our excellent correspondent in regarding this lament as an evidence of "untimely sensibility;" but join in deprecating earnestly any steps which should tend to break up the museums and galleries of Rome.

When the collections of private individuals, gathered together with time, discrimination, and pains, are distributed and sent east, west, north, and south, it is matter for deep regret. How much more so would it be in the case of those wonderful agglomerations of the results of human skill in Rome,—connected with it by so many associations, and which have formed for so long its chief glories!

If they are destined to be distributed, we should desire that they might come to England rather than be sent elsewhere, but so long as that can be prevented, we hope to see no inducements offered by our countrymen.

The newspapers say that the Edinburgh artists have been deprived of the opportunity of exhibiting their pictures this season at the Royal Academy, through the detention of the steamer which carried them. They did not arrive in London until the 9th, the day after the time fixed for receiving at the Academy, and the statement is, that the council considered the regulation imperative, and declined to receive them. If it were shown that the delay occurred through no fault of the artists, it may be thought that the council would have been justified, by the peculiar circumstances of the case, in overlooking the few hours by which the date had been exceeded. It is a hard thing for the artists, as the chance of obtaining a return for their labour is, in all probability, postponed until next season.

Apropos of which, we may mention that the general meeting of the Art-Union of London, for the reception of the annual report, and the distribution of the funds for the purchase of works of art, will be held in Drury-lane Theatre on Tuesday next, and will be open to all members and their friends. We shall give, as usual, a full report of the proceedings, and a correct list of the prizeholders.

As our gossip has fallen on matters of art, we may mention as amongst the works now exhibiting at the Cosmorama, in Regent-street, a remarkably beautiful model of Cologne Cathedral, with its spires completed, and forest of 5,000 pinnacles. It is the work of a German, Herr Charles Schropp, and is formed in wood and iron coloured; the niches are filled with their statues, and the windows with painted glass. It is 8 ft. 8 in. in length, 4 ft. wide, and 8 ft. high, and was completed, the modeller says, in eight years. It gives an admirable idea of this wonderful structure, and deserves a visit.

The last time we saw the cathedral of Cologne, thousands of persons were crowded around it, from all parts of Germany and many parts of Europe. The King of Prussia was about to lay the first stone of the new works, and the words he used on the occasion are still ringing in our ears. "Here where the ground-stone lies," said he, "here by these towers, will arise the noblest portal in the world. Germany builds it,—may it be for her, with God's will, the portal of a new era, great and good! Far from here be all wickedness, all iniquity, and all that is ungenuine and therefore un-German! May dis-union between the German princes and their people, between different faiths and different classes never find this road; and never may that feeling appear here, which, in former times, stopped the progress of this temple,—aye, even stopped the advance of our fatherland! Men of Cologne, the possession of this building is a high privilege for your city, enjoyed by none other, and nobly this day have you shown that you recognise it as such. Shout, then, with me, and while you shout will I strike the ground-stone;—shout loudly with me your rallying cry, ten centuries old, 'Cologne for ever!'"

And loudly was it echoed far and wide, "Cologne for ever!"

Since then great changes have taken place in Germany, calculated, we fear, to retard the progress of this important work.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

AWARD OF MEDALS.

At an ordinary meeting of the Institute held on the 16th inst., Mr. Sydney Smirke, V. P., in the chair, the following report from the council, on the award of the royal medal, and the essays and drawings submitted in competition for the other medals, was read:—

"The council have to report to the meeting, that pursuant to the notice publicly given, they proceeded, on the 29th of January last, 'to take into consideration the awarding of the Royal Medal for the year 1848, to the author of some literary publication connected with architecture; and having received and examined the several claims submitted, at a subsequent meeting, on the 12th of March, it was resolved, That the Royal Gold Medal be awarded to the Signor Cavaliere Luigi Canina of Rome, as the historian of architecture from the earliest period, and for his antiquarian researches; he having published a series of important works on the various styles of art, and likewise on the tombs of Etruria, the cities of ancient Latium, and other antique remains.'

This resolution of the council having been duly notified to her Majesty the Queen by the president, his Lordship was authorised to express to the council the full approbation by her Majesty of the award.

For the medal of the Institute offered for the best essay 'On the Peculiar Characteristics of the Palladian School of Architecture, and a comparison and contrast of its elementary principles and details with those of Ancient Roman Art,"—three essays were submitted in competition, distinguished by the following mottoes and marks:—No. 1. 'There's something of Magnificence about us we have not seen at Rome;' 2. 'How different, yet how like the same;' 3. 'The Letter X.' The council are of opinion that the essay designated by the motto, 'There's something of Magnificence about us we have not seen at Rome,' possesses considerable merit, and is entitled to the reward offered, and they therefore recommend that the silver medal of the Institute be awarded to it accordingly.

For the medal offered for an essay 'On the best manner of covering the roofs, and forming the flats and gutters of buildings,' &c., there are two competitors: one essay bearing the motto '*Finis coronat opus*,' and the other 'Spe,'—but neither of them possesses sufficient merit to justify the council in awarding the medal on this occasion.

For 'the Soane Medallion,' the subject being, 'A Design for a Building to serve as a national Repository and Museum for the illustration and exhibition of the productions of the industrial arts, with all suitable accessories, &c;' six designs have been received, thus distinguished:—1. 'Simplicitas,' 2. 'Solidity, Convenience, Delight,' 3. 'Endymion,' 4. 'Esticot,' 5. 'Justitia! imploro Fidem,' 6. 'Usui populi decori Regni.' It is with feelings of sincere regret the council announce that they cannot recommend the award of the Soane Medallion on this occasion. They deem it proper to state that the designs submitted exhibit generally a surprising deficiency of the recognised elementary principles of architectural composition, together with a lamentable want of constructive knowledge. In some, prominent and integral portions of the structure are impracticable as to execution; in others, the most glaring discrepancies are apparent between the plans, sections, and elevations, and although it may be thought of minor importance, the drawings in general exhibit great negligence in execution, both as regards outlining and shading. The council consider that with a just regard to the best interests of those who aspire to be distinguished for their education and taste in the art, they are necessitated to withhold the reward offered, lest it might be inferred that the institute adopts, as a standard of merit, either of the productions now submitted."

Mr. C. Fowler said he thought it desirable that the award of the medals should be the act of the Institute, and not of the council alone: but in this case, as the report must be put to the meeting for confirmation, it would also be open to objection.

Mr. Godwin said, that to alter the award now was, of course, out of the question, as it had been communicated to her Majesty, and had received approval; but he would nevertheless strongly express his dissent from the policy of the council in sending the Royal medal abroad so early, considering how few honorary rewards were open to English architects and architectural investigators.

It was ultimately ruled that the award was in the hands of the council, and did not need the confirmation of the meeting. The report, therefore, was not put for reception by the meeting, a departure, to the best of our recollection, from the proceedings in similar cases before.

The letter which accompanied the selected essay being opened, the author was found to be Mr. Wyatt Papworth.

Mr. Robert Rawlinson, one of the superintending inspectors in the General Board of Health, then read a paper, prepared for our columns, and which follows this notice, on the hollow brick ceiling recently turned over St. George's Hall, Liverpool, and on hollow brick constructions generally.

During the discussion which afterwards ensued, the Chairman said that, as to the use of *terra-cotta*, we were quite in our infancy, and might with advantage look back to the works of the ancients. Some time ago he had applied to the principal drain-pipe makers respecting some tubes 3 feet in diameter, and found they could not be had. Twenty years ago he had seen abroad earthenware pipes of this diameter, lining a well 3,500 years old, with holes for the toes in the event of desiring to descend.—Mr. Garling reminded the meeting that hollow bricks had been used by Soane and others, and were probably abandoned because of expense.—Mr. Fowler spoke of their use for floors in Berlin.

Mr. Edwin Chadwick said the expense now was much lessened: 1,000 tiles made by the machine cost about ten or twelve shillings, and it was thought 1,000 bricks could be obtained for 2s. more. Wherever tiles were made, these bricks could be made. As to strength, the hollow brick was stronger than the solid, probably because more dense and better burnt.

The Health of Towns Association held their annual general meeting on Tuesday at the house of the Statistical Society, St. James's-square, the Hon. Frederick Byng in the chair. The meeting was addressed by the president, by Dr. Guy, Dr. Aldis, Mr. John Gunter, Mr. Mackinnon, M.P., Mr. P. H. Holland, Dr. Oliver, Mr. Grainger, Mr. Liddle, the Hon. H. Melville, and Dr. Melroy. The usual business of the year was moved and adopted, and a vote of thanks to the chairman passed before the meeting separated. An appeal to the public for subscriptions was made, and ought to be listened to.

Great Grimsby Docks.—On Wednesday the first stone of the Great Grimsby Docks (weighing 11 tons!) was laid by his Royal Highness Prince Albert. We shall give some particulars of this undertaking next week.

NEWSPAPER

REMARKS ON HOLLOW BRICKS,

AS USED IN THE GREAT ARCH CEILING OVER ST. GEORGE'S HALL, LIVERPOOL, AND ON BRICK AND ARCH CONSTRUCTIONS IN GENERAL.

IN the following brief and imperfect remarks, on the peculiar structure of the ceiling of St. George's Hall, I beg to disclaim any pretensions to originality in the matter. My only desire is, to give a plain statement of facts. The use of bricks and tiles, solid and hollow, appears to be as old as the records of history. They are dug from the buried ruins of a forgotten civilization in Asia; the Egyptians converted their manufacture into an intolerable burden to the enslaved Jews; the Etruscans and Greeks were skilled in the art of working clay, to an extent even now considered almost perfect; the Romans constructed vast works with bricks and tiles, moulded into forms of use and beauty, unknown even in this age of invention; and the Italian architects have used bricks and tiles in their buildings, following the examples set them by their Roman predecessors. There are many old examples of brick and tile work where the material has been moulded into forms of ornament as well as utility of construction.

In the fifth and sixth centuries, bricks were used in walls and arches as a facing to rubble and concrete, as seen in the sections given of palaces, churches, and other constructions of the time of Theodoric, at Terracina. The ancient temple of the Caffarella, two miles from Rome, one of the earliest examples of a pagan temple consecrated to the Christian religion in the fourth century, is of brick, and the cornices, which are bold in their projection and elaborate in relief and ornament, are also of brick, and terra-cotta ornaments adorn the structure.

St. Stephen's, the round, at Rome, was ceiled with small vases or tubes of terra-cotta; these tubes were from six to seven inches in length, three inches in diameter, the exterior surface spirally channelled to give greater hold to the mortar. This building was converted from a heathen temple to a Christian church, in the fifth or sixth century.

The church of St. Vitali, at Ravenna, built under the reign of Justinian, and from drawings brought from the East, in the sixth century, has a dome constructed in spiral lines with small terra-cotta vases, seven inches long and two inches diameter, the lower part of the structure being built with vases of terra-cotta twenty-two inches high and eight inches in diameter.

The house of Pilate, at Rome, eleventh century, exhibits a knowledge of construction and adaptation of brick and tile to the purposes of ornament and use, for which we shall look in vain to find many modern examples to compare with it; there is beauty, utility, fitness, and variety combined, so as to give strength and grace to the structure. If we would learn how to construct arches for durability, we must (except in rare cases) most certainly refer to the works of men two thousand years dead and buried. We shall assuredly not find in their great works any examples of flat lintels over openings, with parallel bricks, set in parallel beds, until the courses meet in a point on the under side, leaving a triangular space for the key, which is fitted in with similar parallel courses, and yet this abortion of an arch is the modern mode of construction in too many instances throughout this country; examples of it may be found in new houses and public buildings not six months old; the cement and stucco-fronted shams of modern London have rarely any other form of construction, and the result is exhibited in ugly cracks and rents over the door and window openings.

I would beg to mention, incidentally, that fitness and propriety are not so much considered as they ought to be in the construction of arches for architectural purposes, and I could bring hundreds of examples, even from those termed our finest buildings, to prove this. The purpose of an arch is to span and cover in a space not attainable by horizontal lintels. This may be termed its prime purpose on a great scale, such as in the ceiling immediately under notice; this is only accomplished by a judicious distribution of strength and weight, so as to balance equally all the parts. At the springing line, the arch must be the deepest on bed; at the crown, or key, it ought to be the lightest and thinnest, so that if it was divided along the line of key and erected into a wall on each abutment there would be a gradual diminution of thickness and strength from the base to the summit. I would ask, is this the mode of construction generally used? Do we not see all forms of arch, the semi, the segment, and the elliptical, with a bed at the springing several times less than the depth at the key. Divide such arches, and rear them up on their abutments, and we should have the pyramid on its apex. Then we have faulty jointing; the beds of an ellipsis all drawn to one point, as seen in the arch at Temple Bar; or the inner and outer line is equally divided to produce the bed lines; archstones bent in the form of an *F*, as seen in semi's, &c.

The bent joint, or bed, in masonry ought never to be used. All masonry must depend, principally, up onits gravity, for stability; stones cannot, legitimately, be hung together; they may, however, be joggled for some purposes of strength in their vertical joints and horizontal beds, but no form of arch should depend upon joggles. Stone ought to be considered as having no tensile strength, and be treated and used accordingly. Bricks should be made subject to the same rule.

In bridge-building we frequently see a heavy ponderous key-stone, and over it a break in the cornice, with a massive solid pedestal in an otherwise open balustrade, on which, at times, a lamp is placed. All this is false; the pedestal should be over the pier or abutment, and not over the key, where all should be light and graceful: unbroken lines over an opening always have the best effect; there should be no massing or adding of weight at the crown of an arch.

The bridges of Telford and Rennie display constructive skill of the highest order; Mr. Buck, the engineer, has studied bridge construction thoroughly, and his examples may be considered perfect. Some of his bridges can be seen in Manchester, near the Birmingham and Sheffield Railway Station. The great bridge over the Dee at Chester, designed by the late Mr. Harrison, and constructed by Mr. Jesse Hartley, Engineer of the Liverpool Docks, is one of the finest examples of masonry in the world. Mr. Hartley is perhaps one of the most perfect masons and constructive engineers of the age, of which his Liverpool dock-works are an enduring testimony; he is always perfect in his arrangement of masonry beds and joints. There are also good examples by other architects and engineers.

Columns and architraves, forming the appearance of a door or porch, have no business with the abutments or piers of bridges; they are not useful, and most certainly are not ornamental, and yet we find them added to the finest bridges in the world; some of those over the Thames.

In making these remarks I may be considered bold, and presumptuous; but I must dare the censure in advocating propriety and fitness in construction, and asserting that construction must be the first consideration. If ornament will not harmonize with construction, ornament must give way; if precedent rebels against construction, precedent must be abandoned.

It has been shown from the ancient examples quoted, that the use of hollow bricks, tiles, and terra-cotta vases for arch and dome structures, is at least 2,000 years old, and that some of the work is now perfect; an enduring testimony to the constructive skill of the architects and builders. We may not then claim the honour of invention in the use of hollow brick or tile; but we may follow the example set to us, and, with modern means and appliances, improve upon our models. We have clay in abundance, fuel cheap, tile and brick-making machines to economise labour, &c. There has hitherto been one great drawback to improvement in brick and tile construction, the excise duty. This in a great measure has arisen from an idea that the law dictated the form and size, namely, 10 inches by 5 inches, by 3 inches, or, 150 cube inches. The 150 cube inches the law does dictate as the largest size for single duty; but any form may be given to that cubic capacity; and, if the brick does not displace, in water, more than this number of inches, it will be allowed at the single duty. But even with this relaxation, the law is more fitted for China than for Great Britain, as it cripples invention and cramps construction.

I will now quote some passages, from a MS. volume by Mr. Edwin Chadwick,* on the subject of hollow bricks:—

If we suppose that improvement were to stop at the adoption of constructions of hollow brick, made of the common sizes and shapes, so that they might be worked by the common bricklayers without change of their practice in any other respects, the gain would be considerable in getting rid of a large proportion of the absorbent qualities, and the damp incident to the use of common bricks, apart from the gain in the more economical manufacture of the hollow bricks.

There appears to be no reason to doubt that all the observations which we have collected, in respect to the superior warmth of double walls, and of walls made hollow as described by means of half bricks, of battened walls, and of hollow walls of wainscot, will be found applicable to walls of the proposed hollow brick construction. In reducing the amount of heat requisite to repel extraneous damp, we economise the labourer's fuel, in other words, increase its power and his means of comfort.

Suppose the walls of a cottage constructed 9 inches thick with 9-inch hollow bricks, the possible absorbent power of the walls of a cottage, say of 500 cubic feet, will be reduced from 306 gallons to 102 gallons of water.

Any gentleman who has a tile-machine and a kiln, may with it use almost any description of clay, and more conveniently apply it to the manufacture of hollow than common bricks for the construction of dwellings for his labourers; which dwellings will be drier and warmer, and he may afford to let them at a lower rent than the common cottages.

For farm steadings, also, and for garden walls, the less absorbent and drier walls, constructed with the harder-burnt and less porous hollow bricks, will be found of great advantage.

But the remaining absorbent power of the hollow bricks, it may be submitted, is an ill quality, for the removal of which it is worth while to make exertions. To this end I have requested a trial to be made of a machine, for giving additional density by additional pressure to the bricks made by the machine. The trials are very satisfactory, and the work is promised to be done at a very cheap rate.

I propose to have the bricks glazed, to save whitewashing and paint inside the house, and to give a cheerful appearance on the outside, and to repel the weather. The process, judging by that for pottery, need not be an expensive one. It would, moreover, be worth the while to increase the density of the clay, by a careful preparation of it in the mode of potter's clays.

By the additional pressure, greater exactitude to form will be given, and larger bricks made, fit for a construction of the nature of ashlar or stone construction.

To keep, however, to the construction of walls, there appears to be no reason for supposing that a 5 or 6-inch wall may not be made by means of hollow bricks sufficiently dry and warm, to render any further increase of thickness of little moment compared with the expense.

In towns, space in houses is of the greatest consequence. There, the space for the houses of the poorer classes may be taken as small and fixed; and this being so, all that can be gained from the thickness of walls, within that fixed area, is gained as breathing space.

Thus, the difference between a 9-inch and 5-inch wall, in a fourth-class two-story house, is about 500 cubic feet, equal to the space for two bed recesses, or one small sleeping room.

The improvement in the manufacture of bricks so as to ensure to a thick wall greater dryness and warmth than to a practically thick wall, is a highly important object.

Hollow bricks, it may be stated, from the experience of hollow walls, will transmit far less sound than solid walls. Partitions may be made of 3-inch hollow brick, which will not only attain this end excellently well, but another,—that of superseding the hollow wooden partitions, which give dreadful facilities for the spread of fires.

In confined space and crowded apartments, the noise and disturbances from the tread of adults (not to speak of children or their noises) is the occasion of much irritation, and, in the cases of sickness, of pain and injury.

To prevent this, and to isolate as far as possible one family from another, and the living rooms from the sleeping rooms, the floors of some of the improved dwellings for the labouring classes at Birkenhead were constructed of brick in flat arches of about 6 feet span. The arches were

* "On the chief evils affecting the health and comfort of the population, which appear to be preventable by improvements in the materials and for the construction of dwelling-houses, more especially of the dwelling-houses for the poorer classes."

tied together by iron ties, and abutted in the centre on an iron beam. The spaces between the upper surface of the arches and the spandrils were filled in by mortar, on which flat tiles were imbedded. They answered the purpose perfectly; but the weight of a floor of such a construction must be very great. Observing this construction, and, generally, the economy of constructions of groined arches in brick, where the same centreing was used successively for many arches, it occurred to me to propose the construction of such floors of hollow brick, moulded in form for the purpose. The precise thickness, and the best forms of bricks for the purpose, may not be readily determined. The expense of an ordinary wooden floor, of 12 feet square, would be about, I am informed, 7*l.*; the expense of an arched floor of the hollow brick construction, tied together with iron ties, taking the hollow brick at one-third less price than the solid bricks, is estimated at 4*l.*

With constructions of these hollow bricks experiments were made—

1st. For a series of arches of small curvatures without iron ties.

2nd. For circular arches without iron ties.

3rd. Elliptical arches with iron ties. The experimental arches were 2 metres, or 6 feet 6 inches wide, or 43 square feet, being a portion of a surface of 690 feet.

The ordinary weight of a common wooden floor of that extent, as constructed in England, would be about 700 lbs., and it would be expected to bear say 2 tons. Each ton would be equivalent to the average weight of say fifteen adult persons, at least, in England. The results were—That the elliptical arch made of earthenware pots or hollow bricks, 6½ inches high and 3½ inches in diameter, without iron ties, supported, besides its own weight, a load of about 2 tons 10 cwt. on each 10 superficial feet.

That an arch of small curvature, made of hollow bricks 9¾ inches high and 5½ inches diameter, supported besides its own weight a load of 3 tons 18 cwt. on 10¾ superficial feet.

That a portion of a circular arch, constructed with earthenware pots 12½ inches deep and 5½ inches in diameter, supported besides its own weight a load of upwards of 5 tons, or the weight of more than 67 adult persons of 165 lbs. each; that a floor of earthen pots, 4 inches high and 3½ inches in diameter, tied with iron ties, supported besides its own weight a load of 2 tons per square foot; that a floor, formed with earthen pots 7½ inches high and 4½ inches in diameter, and tied with iron ties, supported more than 3,994 lbs., or the weight of 24 adult persons, besides its own weight.

The experiments and practical experience in private and public buildings of the Parisian architect corroborate the general conclusions which are submitted as established in relation to the hollow brick construction, as being superior to the common stone and brick construction :—

In preventing the passage of humidity and being drier.

In preventing the passage of heat, and being warmer in winter and cooler in summer.

In being a security against fire.

In preventing the passage of sound.

In having less unnecessary material and being lighter.

In being better dried and burnt harder and stronger.

In being more cleanly.

In being cheaper.

The extent to which these qualities are attainable must depend upon the extent of demand for them, upon further attention and experience been brought to bear upon them, and on the approved application of machinery to the construction of the various eligible forms of hollow bricks.

So far Mr. Chadwick.

The modern French architects use a kind of pottery vase in construction for partition walls, floors, stairs, and ceilings; but they depend more upon the lightness of the material and the strength of their mortar and cement, for the stability of their works, than upon skill in constructive adaptation of their hollow pots. If fact, the stability of their work depends upon the strength of the mortar or cement (gypsum), and iron bond, altogether, as a glance at their forms of hollow ware will show. We are not without some modern examples of hollow brick or tile work even in London—floors and arches have been found of such material, as when the old Carlton Palace was taken down, as mentioned in the manuscript volume already referred to. It is difficult in this our day, to settle satisfactorily where or how an idea is obtained. "Necessity is said to be the mother of invention," and no doubt many inventions are new to the person, which are old to the world; the faculties of the mind are infinite for purposes of combination in thought, but frequently similar in their results. Two men, wide apart, in distant regions, may strike at the same idea, when investigating the same causes; and we, consequently, have every great invention disputed by rival claimants. It was so with Franklin and electricity; and one of the most recent instances is the discovery of the planet Neptune, in astronomy. If, however, all men were honest to themselves, they would care little about priority of discovery, as the man who is anxious to earn fame from one lucky thought or invention, is seldom deserving of the honour. True genius will not rob for an idea, and has no fear of robbery from others; but it will adapt, mould, and use the ideas of every age, for purposes of utility, ornament, and truth.

The ceiling now turned over St. George's Hall, Liverpool, was designed by my late friend, Mr. Elmes, a bill of quantities for which was made out by him in March, 1843. The arch was to be of solid brickwork. Patent compressed bricks were specified for, and for this mode of construction the contract was let to Mr. Tomkinson, the builder. I had many conversations with Mr. Elmes from time to time about the arch, and I always expressed myself confidently as to its practicability. Several forms of section were made, and Mr. Elmes sought up all the known examples of great ceilings to guide him in the construction of his own. The form and sectional strength settled, another difficulty presented itself. The room must be ventilated according to plans devised by Dr. Reid, and the doctor required 400 square feet of open space, as equally diffused throughout the arch as possible.*

When the time for preparation to commence the work came, Mr. Elmes was stricken with his fatal malady; his strength was failing, and the physicians had ordered him abroad: he sent for me to come and see him, and as I was not at the time much engaged, I commenced some sections of the arch to provide for the required space for ventilation; and the plan decided upon at the time was, to leave out alternate headers, as frequently seen in the sides of a barn.

I had quite forgotten seeing hollow bricks in Mr. Chadwick's office at Somerset-house, although I had written to Mr. Elmes at the time recommending their use. But it was certainly with Mr. Chadwick that I first saw them. These were of the ordinary size.

Mr. Elmes left England never to return, and as the time for commencing the arch drew on, I was constantly turning the subject over in my mind how I could obtain lightness, open space, and strength. About this time I was called over to Castle Howard on professional business; and, in the steward's office I saw some beautiful drain-tiles, 12 inches long, with a bore of 2 inches in diameter. I took one up, examined it, and asked how and where it was made, when I learned that they had machines which made them on their own estate. My first idea was, why not construct an arch of circular tile, set in cement? My next question was, will the machine make other shapes than the circle? and the answer was, "any shape you like." I then thought of hexagons, and finally adopted the square, and settled the present dimensions, four inches by four inches, by twelve and a half inches, for purposes of bond. On my return to Liverpool, I wrote to Mr. Scragg, the maker of the machines, and asked him to meet me on the ground at St. George's Hall. I shewed him the sections, and the building, explained what I required him to make, and ordered fifty tiles to be made of the dimensions above stated; half with a longitudinal perforation of three inches, and half two inches. I then weighted them singly, and decided upon the two-inch perforation. I drew up a report,* and presented it to the committee, when they decided at once to adopt the hollow tile. I consulted Dr. Reid about them, and had his full concurrence for their use. I loaded four of the tiles, placed singly, with upwards of thirteen tons, without their shewing any tendency to fracture, and I left them loaded as an answer to all objections to their use on the score of strength (and there were many), intending to have loaded them to crushing, but they were removed without my knowledge. For equal drying, I had fifty thousand moulded with square perforations, but the maker said he found little or no advantage over the circle. Not only was the great hall ceiling intended to be of brick, but the ceiling over the two courts, which are about fifty feet square. These, however, have been formed of timber, notwithstanding the order of the committee to the contrary, and although the hollow bricks for their construction were delivered on the ground.

The great arch is struck from three centres, and the soffit is divided into panels, the ribs to form which are worked in the tile. These longitudinal ribs are bonded with York paving, four inches in thickness, cramped together at the joints. The main ribs of the arch are two tiles, or two feet in depth; the plain portions of the panels are twelve inches, or one tile in depth, so that the strength of the arch, of sixty-five feet span, is reduced to twelve inches in depth, with the weight of the panel ribs added. The accompanying section † will further explain the construction.

That hollow bricks may be used in arches, with perfect safety to the structure, is, I think, fully proved, and I have no doubt but that he researches of Mr. Chadwick will soon be brought into practical use. The machines are an advantage unknown to the ancients, and we may obtain from them a truth of form which shall not depend upon the strength of the cement alone for the stability of the structure. It was the custom formerly to score, or reed, the surface of all pulleys to make the driving strap adhere. This not only lost power, but it rapidly wore out strap and pulley; so we shall find in another way, with our brick and tile work: mould the correct forms, put them together in a proper manner, and we shall require mortar to bed them, but not to be also the sole means of stability and support.

In these modern times we are too much wedded to "precedent," without always fully considering if it is worth imitation, and we are apt to make "ornament" the first consideration, when, in all cases, it ought to be construction. Nature, in this, should be followed. The skeleton of the building ought to be perfect; then clothe and beautify in accordance with that skeleton structure. Nature is ever beautiful because most perfect; but the beauty of nature is not always for the sight. The external forms of grace alone, are present to the eye, but that which is hidden is frequently more complex, wonderful, and beautiful than that we see. Take the skeleton of any animal, and what a combination of structural beauty does it unfold; joint fitted to joint, bone adapted to bone, solidity where solidity is required, tubular where advantageous; notice the graceful curves, the swelling joints, the arched spines, the flattened blades, the serrated skull, and answer if the build of any creature could be improved by all the ingenuity of the skilled mechanic, or the calculations of the most profound mathematician. Take the graceful nautilus, examine its plated chambers,

* Elmes was seriously perplexed by the requirements insisted on for ventilation. As to some alterations in the external appearance of the building in consequence, a correspondent from Liverpool wrote thus last week:—"I was surprised to observe that, in a recent notice of Elmes's magnificent pile, the St. George's Hall here, you had not remarked that the 'sky line' of the admirably designed central mass was broken and destroyed by the projection of a huge louvred structure, rising above the intended ridge of the main roof, and that the circular termination to the north, containing the concert-room, is shockingly disfigured by a polygonal boarded lantern, which has been aptly compared to the ventilator of a common brewery. Both these blots are the result of the adoption of the method of ventilating, and were never contemplated by the architect in the first instance, as may be seen by examining the model kept on the works; and though I believe every exertion was made by that lamented artist to save his beautiful design from such injury, he strove in vain; the inexorable doctor would not give way, nor would the corporation authorise a departure from his project. An additional couple of courses in the stonework of the centre would have hidden the eyesore *there*, though certainly at some sacrifice of its deeply-studied proportions, but cure for the northern excrescence there was none, but by making it, if possible, a sightly, since it would never be an ornamental, adjunct. Neither of these remedies has been applied, the economy imposed upon the building committee by the accession of several heavy items beyond the contemplated cost of the building, preventing the further addition which would have been thus incurred. It is needless to say that to a man of Elmes's fine taste such unsightly projections on his intended outline were a source of great annoyance, or that they will have a like effect on every one with a feeling for the beautiful in architecture; but that they are indispensable to the proper ventilation of the buildings, or that the same area of exit could not have been provided in some less obtrusive manner, would, I venture to think, be less easy of proof."—ED.

* This we will give, with the specification, next week.—ED.

† The section is to a scale of 1-16th of an inch to 1 foot. We likewise give a plan of the great hall and adjoining apartments, which serve as abutments, (see page 186). The spaces marked A A on plan are for ventilation.—ED.

see how they are curled over, backwards and forwards, to give the greatest quantity of support, with the least expenditure of material, over the greatest external surface. Look at the more graceful fossil ammonite, and consider the enriched markings of its air chambers, varied to every form of section, and then say if man has not much to forget, and more to learn in his structural arrangements. The bee has constructed, age after age, and in all countries where it can exist, the same perfect hexagon, which is proved to be the best form for economising space, and giving strength with the least expenditure of material.

Used with iron, wrought and cast, hollow bricks may be combined for purposes where, at present, wood alone is introduced. Palaces and churches may own their adoption with singular advantage. In hospitals, gaols, workhouses, and asylums they will give ready means for a general diffusion of warmth and ventilation; barracks in tropical climates, so constructed, with hollow walls, would resist the intense action of the sun, and the solid material of the tile the attacks of insects, and, what is almost of as much consequence, their carriage would be about one-third that of solid bricks. Factories and warehouses would be made fireproof at the least cost, as much weight in the floors would be avoided. Museums and picture galleries would be freed from damp and rot, to the preservation of the wonders of nature and the glories of art; the dwelling-houses of the wealthy may have, in every room, a completeness of ventilation at present unattainable with solid bricks. The humblest cottage may have walls, stairs, floors, and roof of the same hollow material; they may be made dry, warm, and fireproof; ventilation may be simple and effective, and fuel may be economised to an extent not at present practised, by expending much of the heat of the fire in the hollow walls and floors. With these advantages, Mr. Chadwick proposes to combine extreme solidity of substance and colour: solidity and finish he will obtain by mechanical pressure; colour by thin layers of tinted clay pressed on the surface, or by washing the semi-dried brick or tile in a mineral solution. The tile making machines will press out any form of section, plain or moulded; and any raised form, not undercut, may be obtained by pressure, as practised in terra-cotta. Hollow bricks can be made subservient to improved construction; they may be worked and combined with stone, solid brick, iron, and timber; they may be made to serve in numerous instances all the purposes of solid material, with advantages peculiarly their own. Much more may be said on the subject—in fact is said by Mr. Chadwick in his volume, which I trust may ultimately be laid before the public.

Before leaving the subject, I beg distinctly to remark that I do not contemplate a superseding with hollow bricks all practised forms and modes of construction, but an adaptation where reason can clearly demonstrate an advantage. One material and one method is the project of a theorist of one idea, or of a quack.

Nature revels in infinite variety of structure, but is always perfect in adaptation and usefulness: let us break the shackles of precedent, and try to imitate nature in her economy, use, and beauty. To do this, construction must ever be our first consideration; this must be adapted to utility, and we may then add ornament for beauty, but ever with consistency.*

ROBERT RAWLINSON.

MONUMENT TO MR. PETER NICHOLSON, ARCHITECT, AT CARLISLE.—In respect to the statue, or other suitable and lasting memorial of this useful member of our profession, which it is proposed to erect in Carlisle, a correspondent, "Alpha," suggests that the fact ought not to be lost sight of that he died in very poor circumstances. It is to be hoped, therefore, that while his talent is honoured his family will not be neglected, otherwise a monument to his memory would be but a sorry mockery of the man.

* The great arch was keyed on March 3rd, 1849, the centres were lowered on the 5th, and it had deflected 3-8ths of an inch by the 12th, and was found in precisely the same position April 14th. The whole of the timbering forming the great centres will be taken down by the first week in May. The arch, however, stands perfectly clear of everything.

NOTES IN THE PROVINCES.

THE repairs of the rood tower of Lincoln Cathedral are proceeding. The south and west sides have been repaired, and the east side is in progress.——A hotel, built by Messrs. Grissell and Peto, near the Colchester Railway station, at a cost of 12,000*l.* to 15,000*l.*, has been charitably converted by Mr. Peto into an asylum for infant idiots.——The new Wesleyan Chapel in Hobson-street, Cambridge, is of white brick with stone dressings; the portico, Corinthian columns, and antæ, are of Ketton stone. The length of the building is 61 feet; width, 45 feet 4 inches; accommodation, 1,000 sittings,—400 free. Mr. Trimer was the architect, and the builders were Messrs. Quinsee and Attack, of Cambridge. The final cost was 2,100*l.* There are school-rooms under the chapel.——The new building near the Sussex County Hospital, Brighton, intended for the Brighton College, the first stone of which was laid on 27th June last, is rapidly approaching completion. Mr. G. G. Scott is the architect, and Messrs. Wisden and Anscombe are the builders. The style is collegiate of fourteenth century, with cloisters along the front of the building. The principal front of the design only has been hitherto undertaken. The class-rooms, however, will accommodate 300 pupils. The plan includes a school-room, dining-room, and chapel; the whole to form three sides of a quadrangle, with houses for the master and wardens arranged about the front.——The market improvements at Worcester, in the conversion of a space of ground, recently occupied as a market for green-grocery, into a butchers' and fish market, are rapidly progressing, under the superintendence of Messrs. Rowe and Son, architects, of that city. The butchers' market will be 112 feet in length by 40 feet wide, and fitted up with four rows of stalls, and lighted by side lights. The fish market will be divided from it, and lighted from the roof. The height of the market to the apex of the roof will be 31 feet, and the timber supporting the roof will be exposed to view. The *Journal* speaks favourably of the design.——The church at Heywood, Westbury, built at the expense of Mr. H. G. G. Ludlow, of Heywood, was consecrated on Thursday week. The building is in the early English style, with open benches for about 360 persons. The old parish church has lately been restored at the cost of 2,000*l.*——The new chapel at Copston, near Monk's Kirby, Warwickshire, was consecrated on Tuesday week. It is in the decorated style of architecture, and capable of holding two hundred persons. It has been built at the expense of the Earl of Denbigh. The cost was 1,000*l.* exclusive of carriage of materials by the Earl's tenants, free.——On Thursday week the inscription stone of the Birmingham Free Industrial Schools, in Gem-street, was laid with the usual ceremonies. The cost of the erection will be upwards of 2,000*l.*, and the accommodation sufficient for 200 children of both sexes.——The new Concert-hall, in Hope-street, Liverpool, noticed by us lately amongst buildings in progress there, is about to be formally opened with a series of grand musical performances.——Mr. Samuel Addison, banker, Wednesbury, has contributed 700*l.* for the completion of the tower and spire of the new church there. The same gentleman gave 500*l.* in addition to the site, towards the erection of the church itself.——At the Jarrow Docks the operations commenced by the contractors have been suspended, and the workmen discharged, owing to the unsettled state of the affairs of the Railway Company, and the probability of such schemes being, for the present, abandoned. It is said that the arrangements for purchasing the land in the locality were not completed.——The first stone of St. Peter's Church, Ascot Heath, was laid last Monday by the Bishop of Oxford. Mr. Ferrey, architect; Messrs. Higgs and Sons, builders. It is in the Decorated style, and is to cost about 1,400*l.*——The time for lodging plans in competition by certain architects, for the Essex County Lunatic Asylum at Brentwood, has been extended to 1st May.——A site for a new asylum at Hampshire has been selected at Titchfield.——The church of St. James, Lower Gornall, has been enlarged and refitted. The chancel, entirely new, is laid with encaustic tiles. Mr. Bourne, of Dudley, was the architect employed.——A large building in Great Ancoats-street, Manchester, according to the local *Spectator*, is to be fitted up, under the direction of a competent architect, as a model lodging-house.——A sum of 1,600*l.* has been voted, at the West Riding sessions, for the enlargement of the second court of the Wakefield Court-house.——The foundation stone of the Durham Mechanics' Institute was laid, on the 30th ult., by the leader of a procession of Freemasons.——The chancel window of Crosscannonby Church, near Maryport, has been filled with stained glass, supplied by the parishioners. The window consists of three lancet lights; in the centre one of which is represented the Crucifixion. In the left lancet is St. Peter, and in the right, the saint to whom the structure is dedicated. The remainder of the window is fitted with flowered quatre-foils, enclosed in circles. The designs were furnished and the work executed by the Messrs. Scott, of Carlisle.

A NOTE TO WORKMEN.

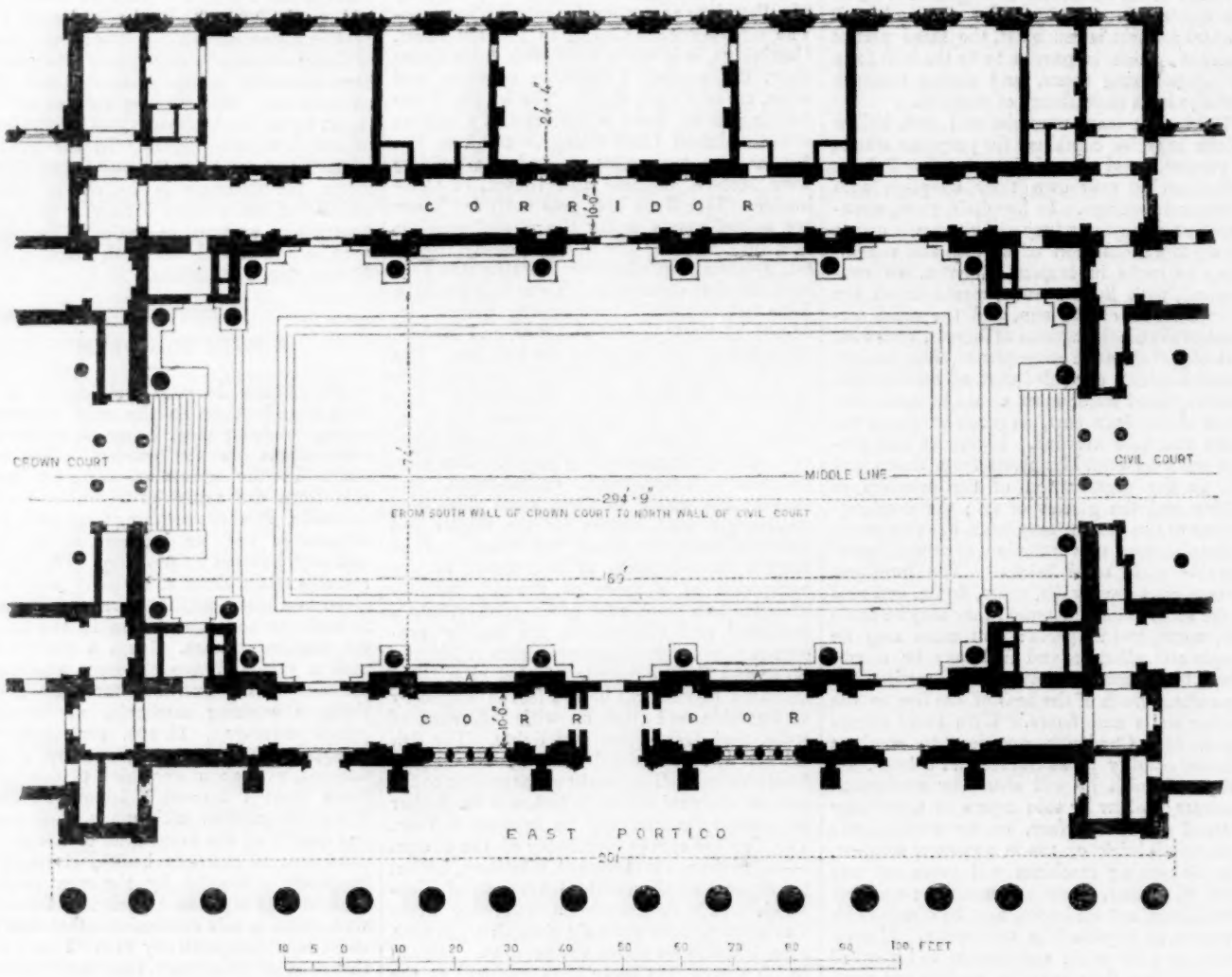
OBSERVING in your publication of last week some remarks on the want of ambition among working men, I beg to make a few observations on the subject. The statements in the article are certainly lamentable facts, the extent of which is very considerable. The evils resulting from them greatly impoverish the nation, and entail misery and wretchedness on posterity. The following remarks relate alone to myself. They are not given as a boast, neither as reproof, but rather to excite an honest ambition in the minds of the working classes. I am a married man, with a wife and five children, who are dependent on my exertions for their support. Being a working mechanic, my income is (when employed) 1*l.* 10*s.* per week. My parents, thirty years ago, were similarly situated, with about one-third of this income. From them I learned a lesson of economy. The great question with me is, what quantity and quality of the necessaries of life are most conducive to promote health, strength, and happiness. Guided by the wise in former ages, and by my own experience, I have long since come to this conclusion—that man's real wants are comparatively few. I have found, therefore, in past years, that two-thirds of my income will sufficiently supply myself and family with the necessaries of life; the one-sixth of the same will meet the casualties of loss of employment; the other sixth, which is 5*s.* per week, or about 10*l.* per year, is laid by for sickness or age. This trifling sum, with interest and compound interest, in a few years will make a poor man comparatively rich. Now, I am persuaded that there are thousands of working men, if they would make an honest statement of what they spend foolishly, the amount of money so spent would be more than I pretend to save, and they are often laying themselves under the necessity of giving 20 per cent. for pledges of their property, when at the same time they might, by resolution and good management, be receiving instead of giving interest for money. Let these hints be received in the spirit they are given. Let them excite an honest ambition to raise ourselves from that state of degradation in which too many of us are found. Better times approach but slowly to the sluggard and profligate,—I might rather say, they are always retreating from him, while the industrious and frugal are overtaking them every day.

A WORKING MAN,
Formerly an "Old Mason."

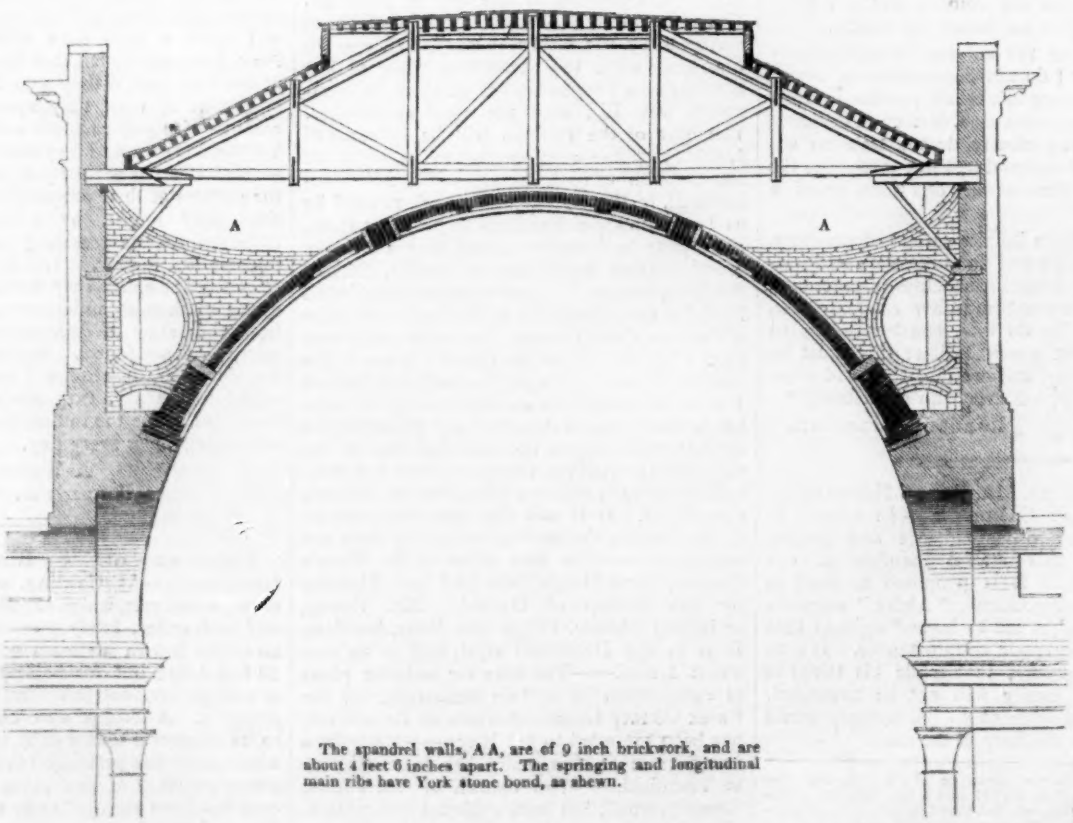
BURSTING OF A RESERVOIR NEAR KEIGHLEY.—At Cowling, on the top of a moor, a reservoir, which supplied a small cotton mill with water, lately gave way, and carried all before it with a stream occasionally 15 to 20 feet deep; but fortunately without the loss of a single life, though several were in imminent jeopardy. A bridge was carried away, and rocks of several tons weight were bowled along with a noise like prolonged thunder. It is even alleged, that "in one place the living solid rock has been scooped away to such an extent that a basin big enough to contain a large house has been formed in one hour."

ST. GEORGE'S HALL, LIVERPOOL.*

PLAN OF HALL, &c.



SECTION OF GREAT ARCH.



The spandrel walls, A A, are of 9 inch brickwork, and are about 4 feet 6 inches apart. The springing and longitudinal main ribs have York stone bond, as shewn.

[* See page 183 in present number.

ENTRANCE FRONT OF THE BRITISH MUSEUM.—Sir Robert Smirke, R.A., Architect.

THE NEW BRITISH MUSEUM.

On the preceding page we place before our readers a perspective view of the entrance-front of the British Museum, now nearly completed. In the second volume of our journal a view was given of the old Museum, known as Montague House, together with some historical particulars.*

The order of architecture adopted throughout the exterior of the new building is the Grecian Ionic. The southern façade consists of the great entrance portico, eight columns in width, and two intercolumniations in projection. On either side is an advancing wing, giving to the entire front an extent of 370 feet, the whole of which is surrounded by a colonnade, consisting of forty-four columns, raised upon a stylobate five feet and a half high. The columns are five feet at their lower diameter, and forty-five feet high; the height from the pavement of the front courtyard to the top of the entablature of the colonnade, is sixty-six feet and a half.

The principal floor of the building is reached by a flight of twelve stone steps at the foot of the portico, one hundred and twenty-five feet in width, terminating on either side with pedestals intended to receive groups of sculpture.

The tympanum of the portico is proposed to be enriched with historical or allegorical sculpture in full relief, and colossal statues are to surmount the pediment. These are not yet executed.

The principal entrance to the museum under this portico is by a carved oak door, hung to a door-frame of stone, nine feet six inches wide, and twenty-four feet high, through which we shall pass next week, and give a view of the great hall and staircase.

The majority of our readers know that the Museum has been erected from the designs of Sir Robert Smirke, but that since 1846, in consequence of the ill-health of Sir Robert, his brother, Mr. Sydney Smirke, has been engaged in completing it.

RECOVERY OF EXPENSES INCURRED BY OVERSEERS IN PULLING DOWN RUINOUS STRUCTURES UNDER THE BUILDINGS ACT.

Last week a case was heard at the Thames Police-office, arising out of a suit for the recovery of 13*l.* 16s. from Sarah Moncar, of Shipwrights'-terrace, Poplar, being the residue of expenses incurred by John Coombs, overseer of the parish of All Saints, Poplar, in respect of a certain building.

The defendant was the owner of a small tenement in a place called Cold Harbour, Blackwall, which has been for many years in a ruinous state, and was inspected by the district-surveyor so far back as 1845, when, it is stated, he reported to the official referees that it was in a dilapidated and dangerous condition, and that it was expedient and necessary that the building should be taken down, and a hoard put up for the safety of passengers. Nothing, however, was done beyond shoring up the building until February last, when, owing to repeated complaints from various persons, the law was set in motion and the Act was brought into operation. The defendant was first waited upon, and the ruinous and perilous condition of the building was fully represented, but without effect. The overseers, accompanied by the surveyor of pavements and the vestry-clerk, surveyed the premises on the 12th of February. The roof had then fallen, and the tenement was in the most dilapidated condition imaginable, and in danger of falling and burying the defendant, the only occupier, in the ruins. The next step was to send a notice to the official referee of metropolitan buildings, who gave Mr. Good, the district-surveyor, orders to make a survey, and he did so, and certified that the premises required to be wholly pulled down. After the various other formalities required by the Act, and a copy of the surveyor's report had been served on the overseers, a notice was served on the defendant to pull down the premises at the expiration of fourteen days from the date thereof. The defendant still refused, and after repeated notices had been given to her by Mr. Kemp, the overseers employed a builder to raze the building to the ground, caused the materials to be sold by public auction, and now sued the defendant for the balance of the expenses, amounting in all to 21*l.* Credit had been given to the defendant for 7*l.* 4s., the sum which the old materials realised by the sale, and proof was given that a formal demand of the balance now sued for had been made. The payment of the district surveyor's fees, auctioneer's expenses, the solicitor's costs, and the services of notices, &c., were proved by numerous witnesses, and there was no question raised by the defendant's solicitor as to the ruinous condition of the building. An objection was taken to the service of a notice, thrust through a broken window-pane, which was overruled. Likewise to the charge of a guinea made by Mr. Kemp, the vestry clerk, including 4s. for coach hire. It was said that Kemp was paid a salary, and it was part of his duty to advise the overseers, and that when he attended the court, or went to the premises in question, he was on parish duty. Mr. Kemp insisted that the duty was special, and had nothing to do with his appointment as vestry clerk, and that he laid out 10s. 6d. for coach hire and fees of court.—The magistrate was at first disposed only to allow Mr. Kemp the money he had actually expended, but finally waived the objection, and 21s. was awarded to him. He directed a warrant to issue to distrain the goods and chattels of the defendant for the sum claimed.

* In the same volume of The Builder, p. 324 and p. 360, will be found two views of the entrance gateway, now about to be removed.

INSTITUTION OF CIVIL ENGINEERS.

LIGHT.

At a meeting on April 17, Mr. R. Stephenson, M.P., in the chair, the paper read was, "On an application of certain Liquid Hydrocarbons to Artificial Illumination," by Mr. C. B. Mansfield, B.A. The paper first noticed that liquid hydrocarbons had been comparatively little used for the production of artificial light; and that in the instances in which they had been applied, their liquidity, and not their evaporability, had been turned to account.

The paper represented that a difficulty had been solved by the discovery of a liquid hydrocarbon as volatile as spirits of wine, but containing sufficient carbon for the most perfect light, and obtainable in any quantity. This hydrocarbon was procured from coal tar, and was called "Benzole." Its volatility was such as to enable it to napthalise atmospheric air as effectually as ordinary naptha did coal gas.

The system proposed by the author (which was illustrated in the room by a working apparatus) consisted in conducting a stream of almost any gas, or even of atmospheric air, through a reservoir charged with Benzole or some other equally volatile hydrocarbon; the gas or air so napthalised being then conducted like common coal gas through pipes to the burners. It was stated that the system was applicable on any scale, from the dimensions of town gas-works to the compass of a table lamp. In the apparatus exhibited, a small gas-holder, filled by a pair of bellows, supplied common air through pipes. The gases formed by passing steam over red-hot coke would answer well for this purpose, and it would depend on local circumstances whether this mode of generating the current would be preferable to the expenditure of the mechanical force necessary for driving atmospheric air through the pipes. Pure oxygen charged with the vapour would explode on ignition; it was therefore suggested that this might prove a useful source of motive force. The system was shewn to be a great simplification of the ordinary system of gas-lighting, as no retorts, refrigerators, purifiers, or meters were required, and the products of combustion were as pure as those from the finest wax.

The apparatus and conditions necessary for the success of the method were, a flow of cheap gas, or of air, driven through pipes by any known motive power, and a reservoir of the volatile spirit through which the main pipe must pass in some convenient part of its course; these pipes and reservoirs being protected from the cold.

It was stated that a gallon of Benzole, of the degree of purity requisite for the purpose, would cost about 2s. 6d.; to this, the expense of the air-current and the interest of the original outlay on apparatus, was to be added. This, the author presumed, would not raise the cost to more than 4s. for the consumption of a gallon of Benzole. It was stated that one ounce of that liquid would give a light equal to four wax candles of four to the pound, for one hour, or one gallon for about one hundred and twenty hours. It was inferred that a gallon of this material was equivalent to about 1,000 cubic feet of coal gas.

SCIENCE AND SCENERY AT HER MAJESTY'S THEATRE.

In the last scene of a beautiful ballet, called *Electra, or the Lost Pleiade*, played for the first time at Her Majesty's Theatre, on Tuesday night, an effect quite wonderful is obtained by the introduction of the electric light, opening new views in stage arrangements, and bearing strongly on some ideas as to the lighting of theatres expressed in a previous volume of our journal.

The story of the ballet is one that has often been used in other forms, and often will be,—it symbolises the struggle in man's mind between the *real* and the *ideal*,—the thought, and the thing. We have only so much to say of it, however, as will serve to explain the particular incident in question: although looked at philosophically, a ballet is not without its teaching.

One of the *Pleiades* becomes enamoured of a mortal on the eve of his marriage, and leads to the struggle to which we have referred. By this act the Star is deprived of her station, but is ultimately forgiven and restored. The scene is a lake, in the bright moonlight, a charming piece of deception, by Mr. Charles Marshall: it changes to the Empyrean, the "highest Heaven" of the poets, where the pure element of fire is supposed to exist. The six *pleiades* rise amongst the clouds, with each her bright particular light, and the seventh, the forgiven, is then seen sailing up and forwards to the front of the stage, with a star so brilliant and far-piercing, that the gas, as sporting men say, is "no-where." Hyperbole apart, however, the effect when we saw it was very striking and very beautiful.

Some of the previous scenes and effects, a forest, and a Norwegian view with torrent and bridge, are creditable specimens of Mr. Marshall's art.

DILAPIDATIONS.

Sheriffs' Court.—*Birch* v. *Edgecumbe*.—This was an action to recover damages for dilapidations, &c., under peculiar circumstances. The facts were these:—The defendant took the premises, situate in St. Anne's, Soho, on a lease, in which was a covenant to keep the premises in repair. After being in possession four or five years, defendant set about performing some repairs, but in the hurry gave no notice to the district surveyor, and as the alterations were not in conformity with the new Building Act, and in consequence the house was condemned, and almost wholly pulled down, the expense in rebuilding was about 500*l.*, which was now sought to be recovered.

The Under-Sheriff (Mr. Burchell) said this was not a repairing lease, but the covenant was merely to keep in repair; that was, he was to keep it in repair according to the length of time he occupied, but not to make the house perfect.

Mr. Prentis, for the plaintiff, submitted that the damage had been wholly caused by defendant's negligence.

Mr. Wiltshire, surveyor, was called, and made a calculation that the house, if properly repaired, would have lasted for twenty-one years; but taking the difference of value in the old and present house, he thought 150*l.* a fair equivalent for the loss.

The jury, after a short consultation, gave a verdict for 150*l.* damages, and 20*l.* for rent—in all 170*l.*

The New City Prison at Holloway.—We understand that the contract for the building of the new city prison at Holloway has been regularly signed by the contracting parties, and that operations are to commence on the ground. The first stone will be laid at Midsummer.

STATE OF WESTMINSTER ABBEY.

Sir,—It has been stated that the Dean of Westminster has, with his well-known liberality and enthusiasm, resolved to apply a considerable portion of his income to the repairs and improvements of the Abbey; but the following extraordinary circumstances have not yet been made known to the public, though they are deeply interesting.

Dr. Buckland having determined to set a noble example, very judiciously began by a close investigation of the actual state of the edifice; and lo! it has been discovered that buttresses and other essential parts of the building are in a dilapidated, and even imminently dangerous condition, so as to threaten with destruction some of the venerable Royal chapels, and the unequalled national relics they contain. It is, indeed, fortunate that the appointment of a dignitary alike remarkable for rare acquirements in science and a generous disposition, has saved the country from the impending misfortune, and the abbey authorities from unavailing reproaches. But the case naturally leads to the question,—how it happened that the ruinous condition of parts of the admired structure was not observed and remedied by others previous to the present Dean's appointment. Appended to a return, printed by order of the House of Commons, on the motion of Mr. Hume, 25th July, 1845, and signed by the auditor of the Dean and Chapter, is a declaration that the moneys received at the entrance are appropriated to "such ornamental improvements of the Abbey and buildings belonging thereto, as do not fall within the ordinary repairs of the fabric (which is maintained out of the funds of the Dean and Chapter, usually appropriated to that specific purpose), or in any manner at the discretion of the Dean and Chapter, so that it be not made use of for any other object for which the Dean and Chapter collectively, or the Dean and Canons individually, are bound to provide."

Four years after this declaration, we learn that the funds usually appropriated to that specific purpose have not been applied to the necessary repairs of the fabric; that the objects for which the Dean and Chapter are bound to provide have been miserably neglected, and at last it devolves individually on a new dean, and he a rare example of liberality and science, to stop the onward course of ignorance, neglect, and utter ruin to the most important of our national antiquities. Surely it would become Mr. Hume or Lord John Russell to ascertain the cause of these inconsistencies; nor should our archæologists cease agitating until similar neglect is rendered impossible throughout the land.

A True Englishman.

RAILWAY JOTTINGS.

From official returns it appears that the amount of traffic for the last week, on 4,432 miles of railway, was 186,473*l.*, thus accounted for:—81,461*l.* for the conveyance of passengers only; 55,942*l.* for the carriage of goods, and a remainder of 49,070*l.* for passengers and goods together, not respectively apportioned; being an increase of 27,842*l.* over the corresponding week of last year, when the mileage was 3,543. The average earnings per mile were 42*l.*, whilst last year they were 44*l.*——The increase of receipts on the London and North-Western for the last eleven weeks, over and above the corresponding period of last year, amounts to 26,845*l.*, or 2,444*l.* per week. The gross receipts for the eleven weeks have been 405,635*l.*, or at the rate of nearly 2,000,000*l.* per annum.——The London and Brighton have made considerable reductions in the charge for periodical tickets, with the view of encouraging building, and extending facilities for suburban residence in connection with the short stations between London, Croydon, and Epsom.—— In place of bells, clocks, &c., as time signals at stations, Mr. J. S. Torrop, of Edinburgh, has devised a new one, or rather adopted an old one, as a railway-train-monitor, namely, a moveable ball mounted on a lofty pillar, wound up to the top by clock-work, and taking a definite time to descend. This time is set to ten minutes. When the ball is seen at the top of the pole or pillar, passengers approaching the station are informed that they have ten minutes; if half down, five minutes, and so on. Being capable of being made a conspicuous object, its indications can be distinguished at a considerable distance by intending passengers, who may be thereby saved all unnecessary excitement and uncertainty in making their way to the station, while the officials will be also saved from the annoyance of questioning as to the time the train is due. ——Mr. Bushby, of Littlehampton, has contracted for the erection of the railway terminus at Landport. We understand the sum is between 10,000*l.* and 11,000*l.* The entire works are to be completed within five months. ——The Admiralty have assented to the proposed South-Western extension line from Richmond to Windsor, on condition that the navigable channel of the Thames be crossed by bridges of one span, with as much headway as the limits of deviation will allow. The point at which the line is to cross the river is about three quarters of a mile below Windsor-bridge. ——The past week has been an important one in the modern history of Gainsboro', from the opening of a line of railway, which places the town within an hour and three-quarters of Hull. The Great Northern line to Lincoln, also lately opened, will be felt as a still greater convenience.

SALE OF JOHN OF GAUNT'S PALACE, LINCOLN.

The old mansion called "John of Gaunt's Palace" has lately been sold, and the beautiful oriel, or bay window, at the south end of the building, was offered for sale separately. It has not, however, been taken down, nor has any part of the building been pulled down or altered, and it is to be hoped that the destruction may be prevented. There is a view of this old mansion, done by Nathaniel Buck, in 1726, which gives a general idea of the whole eastern front. A great part was taken down soon afterwards, but the oriel, and a window which is engraved in Pugin's Specimens, from sketches by Mr. E. J. Willson, of Lincoln, were left standing, and are yet remaining. The former is blocked up, and a modern chimney stands behind it.

Part of the eastern front remained standing until the early years of the present century, and a drawing of it is in the British Museum. This was made by Mr. Grimm, an artist who was employed by Sir Richard Kaye, Bart., when Dean of Lincoln. It is to be feared that the beautiful *oriel* (to use a common term, if not strictly a correct one,) will tempt some amateur to a purchase, and then it may be pulled down and stuck into a modern villa, and thus be deprived of its real value. It has never been thoroughly examined withinside, and, consequently, the delineations that have been made are imperfect. It is unequalled for richness and elegance.

The other window is also very elegant; it has been adopted, by the late Mr. Wilkins, at Cambridge.

Miscellanea.

Re-Erection of the Olympic Theatre. —We urged a short time since the impolicy and impropriety of rebuilding the Olympic Theatre in Wych-street. The *Athenæum*, taking the same view, says,—"We regret to hear that it is proposed to rebuild the Olympic Theatre on its recent site,—the front, for the better convenience of carriage approach, being turned towards Newcastle-street. We wish there were somewhere an authority to prevent this; and are of opinion that had the fire by which this edifice was recently destroyed taken place two hours later in the evening than it did, this authority would speedily have been found. There have surely been calamities and warnings enough of late to point out the pressing necessity of providing ample passages of egress and spacious approaches to buildings in which multitudes of human beings congregate.—Covering an insufficient area of ground and hemmed closely in on every side, the site of the old Olympic seems well chosen for converting such another accident as that which has just destroyed it into one of those terrible events that startle public remorse into such measures of prudence unaccountably neglected on any milder suggestion."

Projected Works.—Advertisements have been issued for tenders,—by a date not specified, for the erection of a district church at Brompton, Middlesex; by a date not specified, for the whole or either of the following churches: a district church at Clay Cross, Northwingfield, and a district church at Belper, in the county of Derby, and a parish church at Bulwell, in the county of Nottingham; by May 8th, for the several works required in erecting the general station at Wolverhampton, with carriage-sheds, platforms, &c.; by 27th inst., for the erection of a new Wesleyan Chapel at Witney, Oxfordshire; by a date not specified, for the erection of a gasholder, &c. for the Sheerness new gas works; by 27th, for the several works to be done in the erection of a parsonage house at Chapel-en-le-Frith, Derbyshire; by 5th proximo, for filling up the site required for the cattle market in Shrewsbury; by 25th, for the erection of farm-buildings for Mr. Adam Eve, Jun., at Hangham, near Louth; by 28th, for the erection of a rectory house at Lambley, Nottingham; by 24th, for the erection and completion of a brick warehouse at Bolton; by 26th May, for the erection of sundry buildings and works at the new barracks at Owlerton, near Sheffield; by 7th May, for about 5,000 tons of cast-iron pipes, from 2 to 26 inches in diameter, for the Manchester Corporation waterworks; by 23rd inst., for certain works and additions to the laundries and drying-rooms of the workhouse, Leicester-square; by 8th May, for certain alterations and additions to the kitchen of the Bedford Lunatic Asylum; by 2nd, for the erection of additional buildings at Queen's College, Birmingham; by 15th, for paving and repairing carriage ways and footways in St. Clement's Danes parish; and by 30th inst., for the execution of the cast and malleable iron-work required for the shed and roof of the central station at Newcastle-on-Tyne; also for building a small station-house at Gateshead, and another at Newcastle. A large contract for sheet copper is shortly expected to be announced by the French Minister of Marine for sheathing a great portion of the national navy.

The Four-mile Panorama.—Sir: On paying a visit last week to the Misissippi panorama in Leicester-square, it struck me that it would be worth while to test the accuracy of its alleged dimensions, viz., four miles. I therefore noticed how many lengths of canvas of the *size* of the disc passed *across* it in three successive quarters of an hour: the average for each fifteen minutes was ten lengths. The exhibition lasted 1¼ hour. The width of the disc was then paced, and found to be about 20 feet; consequently, 20 × 10 × 6 gives 1,200 feet as the real length; so that if even 120 feet be added as compensation for any possible error, the result is still only ¼ of a mile, or 1-16th of the pretended length. This is too palpable a Jonathanism. Of course, if the advertisement be correct, the canvas must, during exhibition, be constantly travelling across the stage nearly at the rate of 3 miles an hour, which would hardly allow the painting to be seen at all, and certainly would give no time for the lengthy stoppages and explanations that actually take place.—A.

National Gallery of Art for Ireland.—At the last meeting of the committee of the Royal Irish Art Union, Mr. Blacker announced that a munificent donation had just been made to Dublin, being no less than two cartoons of Raphael. The subjects were, "St. Peter and St. John Healing the Lame Man at the Beautiful Gate of the Temple," and "Elymas, the Sorcerer, Struck Blind." Early in 1847, he (Mr. Blacker) had some correspondence with Mr. Nicolay, of Oxford-square, London, when getting up the exhibition of the works of ancient masters for relief of the then general distress. He received the other day a letter from Mrs. Nicolay, saying that she was but carrying out the wishes of her late husband in asking him, Mr. Blacker, to take charge of two cartoons of Raphael, which he prized most highly, and was desirious should be presented for the formation of a permanent gallery of art in Dublin. Mrs. Nicolay, as an Irishwoman, felt peculiar, although mournful pleasure in carrying his wishes into effect. Mrs. Nicolay accompanied the gift with a short statement of their history, and how they came into Mr. Nicolay's pos-

session, which appears to have been simply this:—These specimens of the Italian school of art were picked up by Sir Joshua Reynolds during his tour in the Low Countries, in one of the towns where they had been originally sent for the purpose of manufacture into tapestry. At Sir Joshua's death, and at the subsequent sale of his effects, they passed with one intermediate hand into the possession of Mr. Nicolay. A committee was appointed to consider the propriety of having forthwith an exhibition of old masters in connection with the newly-arrived cartoons, the proceeds to form a reserve fund for a permanent public gallery and studying school, and are proceeding to carry this desirable project into effect.

SEPARATION OF PAUL'S WHARF SEWAGE FROM THE RIVER.—Mr. Moffat, C.E., formerly engineer to the London Sewage Chemical Manure Company, has offered to the City Sewers Commissioners 2s. 6d. per ton of dry manure, to be manufactured by him from this sewage in premises to be erected at his own expense near the mouth of the sewer. He proposes to sink an intercepting well, with a shield to prevent the ingress of the tide, and to raise the sewage out of this well by steam-power into tanks, where it will be chemically treated by mixing it with hydrate or milk of lime, so as to precipitate many of the matters in solution, along with those in suspension, to the bottom, after which the water will be allowed to flow off into the Thames, and the residual matter removed and dried, and moulded into portable shape. In storms, when the sewage will be greatly diluted, there will be an intermission of the process. The medical officer of health, and the surveyor to the City Commissioners, have reported rather favourably of the proposal,—recommending, however, that such works should only be allowed as an experiment for one or two years, in case of turning out either a nuisance, or a hindrance to the realization of any more complete or comprehensive measure. In their report they also point out the fact that objections had been taken by adequate chemists to much the same proposal when made by the late Sewage Chemical Manure Company, and that, although such a measure would tend to clear the river of deleterious matter, much of its more subtle essence would still remain in the water ultimately turned into it as heretofore. Mr. Moffat proposes, of course, to dispose of the manure to his own advantage, in fertilising Plumstead Marsh, or othewise.

GRANARIES, &c., AT MANCHESTER.—In connection with the lately opened extension of the Manchester, Sheffield, and Lincolnshire Railway to Gainsborough, and for agricultural traffic, arrangements on a large scale are being made. The goods station is on the level of the street, and some 20 feet below the passenger station. But the goods warehouses, as well as the corn warehouses, will be connected by a viaduct, on the same level with the railway, and thus save the cost of "lifting." At present every truck of goods is lowered and hoisted by steam, worked on the locomotive principle, for the sake of economising the working. The arches below the station are arranged and subdivided for the different local traffic, which has grown so much of late, that the company uses them itself, and foregoes a rental of 300*l.* a-year on each of seventeen such arches. Of these, eleven or so are used by the London and North-Western, and the rest by the Lincolnshire line. For the corn stored in the warehouse, no one is directly charged with rent. The warehouse more particularly used for this purpose consists of a series of flats, about 9 feet high, supported by cast-iron columns. The sacks are lifted in and out by steam power. Each flat is about 180 feet long. The mere fact of making a connection between the stations of the two companies at Sheffield, says the *Railway Chronicle*, at once created a corn traffic in Manchester, which has steadily increased. It has heretofore come from Nottingham and Lincolnshire either by canal, or by the more circuitous course of the Manchester and Leeds Railway.

THE BENTINCK TESTIMONIAL.—Workmen have been boring near the centre of Mansfield Market-place, to ascertain the nature of the proposed foundation of a structure which is to be erected from a design by Mr. Hind, after an early English market-cross.

THE WONDERS OF GUTTA PERCHA are by no means at an end. Its Protean purposes appear to be themselves outvied by its singular properties. Several new ones have been recently discovered. Mr. Torrop, of Edinburgh, has communicated to the Royal Scottish Society of Arts, a notice of one peculiar property. When cast and rolled into sheets, it assumes the nature of a fibrous substance—it acquires tenacity in a determinate direction. When in the roll or sheet this tenacity is longitudinal. But if a strip be cut from the breadth, two peculiarities occur: the strip is susceptible of a definite elongation to nearly five times the original length, and its direction of tenacity is reversed. When it is considered that gutta percha is originally a fluid substance, or gum, these peculiarities are indeed curious and remarkable. In fact, when we keep its multiform uses and its other properties in view, together with such a peculiarity, it assumes all the importance, or at least the simulative form, of a sort of vegetable iron; an idea, however, fanciful as it may be, which another contradictory property, also newly discovered, only tends to upset; for it is said to be, like glass, an electric, only it far excels glass itself as such. A Liverpool correspondent of the *Carlisle Journal*, drawing attention for the first time to this peculiarity of gutta percha, says—"Its electric properties, so far as I am aware, have not been publicly noted; and I venture through your columns to call attention to this quality, which it possesses in a remarkable degree. If a piece of sheet gutta percha be laid upon a table-cloth or silk handkerchief, and stroked quickly with the hand, and then lifted from the table, it emits brilliant flashes of electric light, and considerable sparks may be drawn from it by any conducting substance. The ease with which gutta percha is excited contrasts strongly with the difficulty of exciting glass and resinous substances, especially in damp atmosphere; and there can be no doubt that it may be successfully employed to produce large quantities of electricity. The machine for this purpose may be extremely simple: an endless band of sheet gutta percha stretched over two rollers (one of them turned by a winch), pressed slightly by a cushion and having a rod or wire touching the revolving band and in connection with the conductor of an ordinary electrical machine, would produce a constant supply of electricity, in a quantity proportioned to the surface employed, which may be very considerable; and I shall not be surprised if, by these simple and economical means, effects are produced equal to those attained by the largest electrical machines now in use. I may add, as a useful hint to experimenters with the sheet gutta percha, that it may be readily joined by laying the edges together, and cutting off a shaving with a pair of scissors moderately heated."——The supply of the article is still going on. The vessel *Duke of Bronte*, arrived from Singapore, has recently brought 36 bags, 112 bales, 11,347 blocks, and 1,934 other packages, as a portion of her cargo, consigned to order; and the *Anne Watson*, also from Singapore, has brought 7,402 packages, 120 blocks, and 3 baskets to order.

USE FOR THE PITCH LAKE OF TRINIDAD.—An important communication has been made by Earl Dundonald to Lord Harris, governor of Trinidad, on the substitution of bitumen from the pitch lake of La Brea, in place of coal, to the extent of two-thirds of this fuel, for the generation of steam, in the manufacture of sugar, &c.; thus also restoring to the soil, in form of manure, the refuse of the cane fields now used for fuel. In a furnace, in which it has been successfully used, the bitumen, it appears, is poured into a recess, or pit, just below the fire-bars, leaving sufficient room for a rapid current of atmospheric air, and as it is decomposed, the dense smoke and gases are carried through the incandescent fuel, and go off in flame and great heat. Earl Dundonald has forwarded a plan of this furnace to the governor. The *Port of Spain Gazette* expresses a hope that the subject will attract the attention of the Royal Mail Steam-packet Company, whose intercolonial steamers consume a vast quantity of coal, conveyed at great cost from England to the several depôts, for the whole of which, under a proper adaptation of their furnaces, the pitch might prove a cheap and effectual substitute.

ELECTRO-TELEGRAPHIC PROGRESS.—The admiration excited when first the locomotive express went ahead of all other conveyance of intelligence was only lately excelled, we may say for the first time in this country, by the transmission of a full report, three close columns in length, of the Cobden banquet proceedings, at Wakefield, per electric telegraph, to the *Times*, in which the whole, down to their close, on the way to 12 p.m., was published by 3 a.m.; the whole process of reporting, transcribing, telegraphing, retranscribing, type-setting, and printing, being accomplished,—actually finished—at one end of the country in less than four hours after the words were spoken almost at the other end of it. The telegraph is now beginning in earnest to do its duty; and it is to be hoped that the only drag upon its lightning speed that now remains, viz., extravagant and impracticable charges, will ere long be cast off as an incubus that can no more profit the conveyancers of intelligence than its publishers.—So constantly is the telegraph in requisition for the purposes of the press on the other side of the Atlantic, that one of the New York papers is about to have an "independent" track constructed from New York to Washington and Boston, for its own exclusive use. The eastern route will be 245 miles, and the southern 225 miles.

YORKSHIRE ARCHITECTURAL SOCIETY. At the meeting of this society, the Hon. and Rev. P. Y. Savile, rector of Methley, gave notice, that at the next meeting he should ask for a grant of 10*l.* for the restoration of a fine oak roof, which he had discovered during certain repairs in his church, concealed above a flat plaster ceiling, and he also particularly invited the attention of the members to the peculiar features of the building. It was accordingly resolved that a special meeting of the society should be called at Methley early in May, for the purpose of examining the church. A paper was read by Mr. W. H. Dykes, architect, of York, "On the form and Management of Churches," giving some account of the various types of churches which had been common in different ages, through the Christian world, and showing that, nevertheless, they had all agreed in certain peculiar features, and especially in their having had a distinct chancel, separated by screens from the body of the church.

THE TYNE GLASS TRADE, according to the *Newcastle Guardian*, is only now reaching the climax of its decline. Out of the numerous firms formerly engaged in the window-glass trade, two only remain, and these appear to be not only languid but expiring also. Ridley and Co., a firm of a century standing, have suspended their works, and will probably not resume them. Only two of the flint-glass works remain. Various causes, none of them our authority thinks sufficient, are alleged for the depressure of this trade.

NOTICE.

"BUILDINGS AND MONUMENTS, MODERN AND MEDIÆVAL," being Illustrations of recently erected Edifices, and of some of the Architectural Works of the Middle Ages, with Descriptive Particulars. Edited by George Godwin, F.R.S., Fellow of the Royal Institute of Architects, &c., &c., &c.

Under the above title it is proposed to publish, in bi-monthly parts, price 2s. 6d. each, the principal Illustrations of Modern and Mediæval Buildings which have appeared from time to time in THE BUILDER, with their accompanying descriptive particulars. Each part will contain about eight plates, folio size, and eight pages of letter press, with plans and details. The engravings will be printed separately, with care, on a tinted paper.

The first part will be issued in time to be forwarded with the magazines for May 1, and will contain:—

Her Majesty's Marine Residence, Osborne; with Plan.
The Carlton Club House, Pall Mall.
Church of St. Isaac, at St. Petersburgh; with Details.
Kensington Union Workhouse.
The Liverpool Branch Bank of England; and Details.
The New Throne, Canterbury Cathedral.
The North Porch, Restored, of St. Mary Redcliffe, Bristol.
The Interior of Lincoln's-Inn Hall.

Persons desirous of becoming Subscribers, are requested to forward their names to the office of THE BUILDER.

TENDERS

For alterations, &c., to the Hampstead Union (second time):—

Carter	£5,798 0
Hill	5,350 0
Roberts	5,050 0
Pilbeam	4,754 10
Smith and Cant	4,492 10

MEETINGS OF SCIENTIFIC BODIES

Held during the ensuing week.

MONDAY, April 23rd.—Society of Antiquaries, 2 P.M. (anniversary).
TUESDAY, 24th.—Institution of Civil Engineers, 8 P.M.
WEDNESDAY, 25th.—Society of Arts, 8 P.M.
THURSDAY, 26th.—Royal Society, 8 P.M.
FRIDAY, 27th.—Archæological Association, 8½ P.M.
SATURDAY, 28th.—Institute of Fine Arts, 8 P.M.

TO CORRESPONDENTS.

Received.—"E. B. G.," "C. V.," "W. M." (the association shall have notice), "X + Y + Z" (where can we send a proof?), "J. and B.," "H. J. S." (our correspondent appears not to be aware that THE BUILDER is published at seven o'clock on *Friday* morning; the advertisement did not arrive till Tuesday last), "B. B." "W. H.," "T. M.," "Argus," "J. B.," "B. W. P." (the houses would not be permitted as drawn), "J. H.," "A Subscriber," "H. D.," "H. G. H.," "S. B.," "W. A. S." (if forwarded shall be looked at).

Errata.—In article on Church Decoration last week, for "the good no longer exists," read *good*; and for "presentiments," in two places, read *presentments*.

"*Books, Prices, and Addresses.*"—We have not time to point out books or find addresses.

ADVERTISEMENTS.

LONDON MECHANICS' INSTITUTION, 29, SOUTHAMPTON-BUILDINGS, CHANCERY-LANE.—PRACTICAL GEOMETRY—A new course will commence on Tuesday, April 24th, under the direction of Mr. J. S. HATTERSLEY. PRACTICAL PERSPECTIVE—A new course will commence on Friday, May 18th, under the direction of Mr. T. W. CONSTANTINE. ARCHITECTURAL, MECHANICAL, and ORNAMENTAL DRAWING—In consequence of the decease of the late teacher, Mr. C. DAVY, the committee have appointed Mr. T. W. CONSTANTINE, who (for several years conducted the Practical Geometry Class), has just commenced a NEW COURSE of instruction on an entirely new system to the one previously in use by the class, which will be found to be of great advantage to Artizans and others. The class meets every Monday evening.
4, April 19th, 1848.
JOSEPH TULLY, THOMAS MORRING, } Hon. Secretaries.
N. B. The above classes meet on their respective evenings at 8 o'clock precisely.

PAPER-HANGINGS.—JEFFREY, ALLEN, and Co., solicit the attention of Builders and the Trade generally to their extensive STOCK of PAPER HANGINGS, which, from the use of steam-power and recent improvements in the application of machinery, they are able to offer at remarkably low prices.—Kent and Essex Yard, 115, Whitechapel.

PAPER-HANGINGS by MACHINE and BLOCKS.—The trade supplied in town and country, with machine goods, from first-rate new designs, at the lowest prices they have ever been sold in this country; and block goods, for style and quality, not to be surpassed by any house in England. All the patterns are registered, and can only be supplied by HENNELL and CROSBY, Queen-street, Southwark-bridge-road. Cheapest house in London for oak, marbles, and panel decorations. A set of patterns, &c., to be deducted off an order of 5l.—Terms, cash.

PAPER-HANGINGS, MANUFACTURED UNDER HER MAJESTY'S ROYAL LETTERS PATENT.
E. T. ARCHER, 451, Oxford-street, SOLICITS an inspection of the various DECORATIVE PAPERS, fitted up in panels on the walls of the extensive range of apartments, built expressly for that purpose; where also is kept an extensive stock of every variety of Paper-hangings, at the lowest possible price and of the best manufacture, in English and French Designs, by the best Artists; and where may be had a large assortment of French and other Continental Paper-hangings always on hand.—Builders and large Consumers are particularly invited to the above.—451, Oxford-street.

FRENCH AND ENGLISH PAPER-HANGINGS.
MESSRS. MARKS and CO., French and English Paper Stainers, beg to inform the trade, that having availed themselves of the long interval of labour in Paris, they have since the commencement got together and produced a most beautiful collection of PATTERNS, English and French, for the ensuing season, at prices varying from 6d. to 6s. per piece. Messrs. M. and Co. are prepared to compete in prices with country work of every description.—An early inspection is requested at the Warehouse, 59, Princes-street, Leicester-square.—A large stock of French and English Marbles and Granites. Lining Paper and Canvass at Mill Prices.

CROGGON'S PATENT ASPHALTE ROOFING FELT and INODOROUS FELT, for DAMP WALLS. Sold in rolls, 32 inches wide, price one penny per square foot. Also, Dry Hair Felt, for preventing the radiation of heat and deadening sound. Samples, directions, and testimonials sent by post, on application, to CROGGON and Co., 2, Ingram-court, Fenchurch-street, London.

DAMP and GASEOUS EXHALATIONS.
SANITARY MEASURES.
MEMBERS of BOARDS of HEALTH are especially directed to the most EFFECTIVE MEANS which they can adopt to prevent the injurious and often FATAL EFFECTS upon the HEALTH of the COMMUNITY, arising from exhalations that are produced from moisture, decayed animal matter (as in graveyards), stagnant water, and collections of fœtid refuse, tending to produce a miasmatic state of atmosphere. In situations so affected, the impervious quality of the ASPHALTE of SEYSSEL renders it the most perfect PAVEMENT or COVERING that can be relied upon for hermetically closing, and thereby preventing, the rising of moisture and the escape of noxious vapours. The present extensive application of this material for covering roofs, terraces, and arches, for preventing the percolation of wet, is strong evidence of its effectiveness for the above purposes, which is further confirmed by the following extract from the Report of the COMMISSIONERS on the FINE ARTS. I. FARRELL, Secretary.
Seyssel Asphalte Company, Stangate, London.
"In 1839, I superintended the construction of a house of three stories on the Lac d'Enghien. The foundation of the building is constantly in water, about 18½ inches below the level of the ground floor. The entire horizontal surface of the external and internal walls was covered at the level of the internal ground floor with a layer of SEYSSEL ASPHALTE,* less than half an inch thick, over which coarse sand was spread. Since the above date, no trace of damp has shown itself round the walls of the lower story, which are for the most part painted in oil, of a grey stone colour. It is well known that the least moisture produces round spots, darker or lighter, on walls so painted. Yet the pavement of the floor, resting on the soil itself, is only about 24 inches above the external surface of the soil, and only 18½ inches, at the utmost, above that of the sheet of water. The layer of Asphalte having been BROKEN AND REMOVED, for the purpose of inserting the sills of two doors, spots indicating the presence of damp have been since remarked at the base of the door-posts."
* This method has been adopted at the new Houses of Parliament.

HEAL AND SON'S LIST OF BEDDING, containing a full description of Weights, Sizes, and Prices, by which Purchasers are enabled to judge the articles best suited to make a good Set of Bedding, sent free by Post, on application to their Factory, 196, (opposite the Chapel,) Tottenham Court Road, London.

THE NEW PATENT GAS-LIGHT MONITOR, adapted to every description of Burner, and supplied at a cost placing it within the reach of every Consumer of Gas, regulates the flame to any required height, economising the consumption, and preventing the danger and inconvenience arising from the flaring and smoking of lights. It may be seen in daily use at the office of the Patentees, 26, King William-street, Charing-cross. A saving of 25 per cent. has been effected at several public establishments by its use.

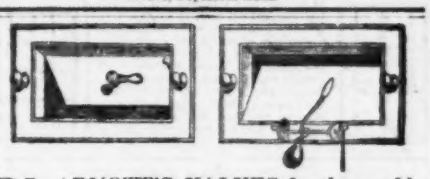
GAS-FITTINGS, LAMPS, and CHANDELIERS.—THOMAS LEDGER, 173, Aldersgate-street, London (two doors from Little Britain), Brass-founder, Gas-fitter, and Manufacturer of Chandeliers, Lamps, and every description of Gas-fittings. Estimates furnished, and experienced workmen sent to any part of town or country. Builders and the Trade supplied. —Warehouse and Show-rooms, 173, Aldersgate-street; Workshops and Foundry, 133, Aldersgate-street.

GAS, in which a GREAT SAVING is to be effected by the use of the new PATENT GAS MONITOR.—STEVENS and SON, having made arrangements with the patentees of the above very useful article, are manufacturing the same, and are prepared to supply the trade wholesale, or consumers with any quantity they may require, and will send experienced workmen to fit the monitor to any lights where it is desirable to ensure a steady flame, rendered impossible to flare or smoke, with any variation of pressure, and effecting an important reduction in the quantity of gas consumed, for which see testimonials.—STEVENS and SON, Gas Engineers and Fitters, Darlington Works, 19, Southwark-bridge-road.

GAS at 4s. 6d. per 1,000 feet.—The use of the GAS-LIGHT MONITOR brings the actual cost of gas down to this price. The Monitor is applicable to every description of burner; its cost is little more than nominal; it may be fixed in a few minutes, regulates the flame to one standard, prevents the possibility of waste, and obviates all risk of accident. The Monitor is manufactured and sold, wholesale and retail, by the licensees, JAMES JONES and Co., Gas Engineers, &c., 38, Bow-street, Covent Garden, opposite the Theatre, who, to encourage the more general introduction of gas into private as well as business houses, have made such reductions in the prices of every description of fittings, including Chandeliers and Burners of all kinds, as must remove altogether the long-existing objection of expense.

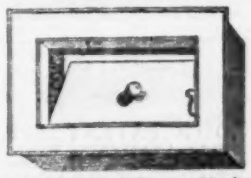
SNOXELL'S PATENT SAFETY REVOLVING WOOD SHUTTERS, Manufactory, 98, REGENT-STREET and 121, CHANCERY-LANE. Patent sealed on the 4th day of February, 1845, for Fourteen Years, for Improvements in Revolving Shutters of WOOD and IRON, consisting of Six Methods of Raising and Lowering Shutters, without Machinery, and Two for Hinging and Sheathing the Edges of Wood Laths with Iron.—The Patentee having fixed up some hundreds, will feel pleased in forwarding the Testimonials of Architects, Principals of large Establishments, and others, having them now in use, which fully guarantees the Patentee in stating they are beyond dispute superior to any other Revolving Shutter for durability, security, and simplicity, without the use of cog-wheel worm and screw gear, or any other complicated machinery employed by other makers.

BUNNETT and Co., ENGINEERS,
Patentees of
REVOLVING IRON AND WOOD SAFETY SHUTTERS,
and of
ORNAMENTAL METALLIC SASH BARS, MOULDINGS, &c., IN BRASS, COPPER, ZINC, &c.
FOR SHOP-FRONTS, SKYLIGHTS, &c.
Shop-fronts completely fitted and fixed in a superior style, either plain or ornamental, also glazed with best plate glass. Strong moulded stallboards handsomely engraved. Metal works and machinery of all kinds in connection with banking-houses, shops, warehouses, &c. &c.
B. and Co. challenge competition as to either quality or price.
Designs furnished and estimates given.
IMPROVED PATENT BENCH AND FLOORING CRAMPS FOR BUILDERS.
SOLE LICENCEES FOR MARVIN and MOORE'S PATENT DIAGONAL GRATINGS.
Office of the Patentees, 26, Lombard-street, London; and at the Works, Deptford, Kent.



DR. ARNOTT'S VALVES for thoroughly VENTILATING APARTMENTS of every description. F. EDWARDS having had the advantage of making them under the immediate direction and patronage of Dr. Arnott, enables him to present the public with Valves of the most approved principle for general use. Prices from 7s. 6d. to 20s. and upwards. A prospectus, containing every information, to be had on application to F. EDWARDS, 48, Poland-street, Oxford-street, London.

DR. ARNOTT'S VENTILATING CHIMNEY VALVE,

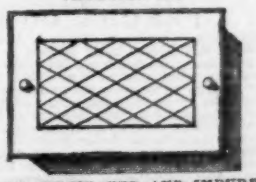


For carrying off Heated and Impure Air from Bed-rooms Sitting-rooms, Counting-houses, and Apartments generally.
LIST OF PRICES.

	First size, 11 by 8.	Second size, 16 by 9
Plain Iron Valve	7 6	12 0
Bronzed and Leathered	9 0	14 0
Japanned, white with Gold lines	15 0	21 0
Brass Front	17 0	24 0

Packing Cases (if required), 1s. 3d. each.
Manufactured by HART and SONS, 33, 34, 35, Wych-street Strand, London.

IMPROVED SELF-ACTING CHIMNEY VENTILATORS.



FOR CARRYING OFF HEATED AND IMPURE AIR from drawing-rooms, sitting-rooms, bed-rooms, nurseries, offices, &c. &c., from 3s. each.—BURT and POTTS, Manufacturers and Ironmongers, 66, York-street, Westminster, London.
Stoves, ranges, rain-water pipes, gutters, and builders' ironmongery, as low as any house in London. Delivered free within 5 miles.

CAST-IRON PIPES, IRON WORK FOR OVENS, &c.
RAIN PIPES, &c.—F. A. TIDDEMAN, St. Ann's Wharf, Earl-street, City, near Blackfriars-bridge, keeps a large stock of Rain Pipes, Heads, Shoes, Elbows, &c., half round and O. G. Gutters, Socket Pipes for Water or Gas, Flanch Pipes, Sash Weights, and other Castings; Iron Work for Baker's Ovens of every description, fitted complete, to be had in sets or in parts.—Prices equal to all competition. Contracts taken to any extent.

SAWING MACHINERY, STEAM-ENGINE, BOILERS, &c.—For immediate SALE, an excellent VERTICAL SAWING MACHINE, to cut planks or deals, with the saws, &c.; CIRCULAR SAWING TABLES, with saws suitable to cut sleepers, or for general purposes; a CYLINDRICAL BOILER, 16 feet by 3 feet 6 inches; and a CORNISH BOILER, 20 feet by 5 feet. Likewise an eight-horse power STEAM-ENGINE, with Boiler. Any part may be purchased separately.—Apply to Mr. MEDWIN, Engineer, 5, Great Union-street, Newington Causeway, who has constantly on sale Steam-Engines and Machinery of every description.

REDUCED PRICES.—EDWARD SIMMS (late William Cleave), of Wilton-road, Pimlico Basin, begs to acquaint Builders and the Trade that he has now on hand, at his Manufactory (the first of its kind ever established), a very large Assortment of Dry and Well-seasoned OAK and DEAL PREPARED FLOORING BOARDS and MATCH BOARDING of all sorts, from ¾ inch to 1½ inch thick, planed to a parallel width and thickness, and at greatly Reduced Prices. Also, Timber, Deals, Oak Planks, Scantlings, Sash Sills, Mouldings prepared by Machinery, Laths, &c.—Apply at E. SIMMS'S (late W. Cleave's) Flooring Manufactory and Timber-yard, Wilton-road, Pimlico Basin.

TO BUILDERS, UPHOLSTERERS, BLINDMAKERS, AND OTHERS.
ALFRED ROSLING begs to inform consumers of Wood Goods, that having purchased very largely during the latter part of last year, when prices were low beyond precedent, he is enabled to offer several Cargoes of Yellow Pine, Plank, and Deals (embracing some of the best stocks imported into this country), as also Yellow, White, and Spruce, Plank, Deals, and Battens, in every variety, at exceedingly low prices, and to which he respectfully solicits attention.—Southwark Bridge Wharf, Bankside.

A REDUCTION in the PRICE of FLOOR BOARDS.—ALFRED ROSLING begs to inform the Trade and Consumers generally, that he has REDUCED the PRICE, and keeps constantly in stock a large and very general assortment of Prepared Floor Boards and Matched Boarding, planed to a parallel breadth and thickness, and fit for immediate use; also a variety of machine-prepared Mouldings, which are finished with great accuracy and attention to quality of workmanship.—Southwark Bridge Wharf, Bankside, and Old Barge Wharf, Upper Ground-street, Blackfriars.

GREAT REDUCTION IN THE PRICE OF FLOOR BOARDS AND MATCH BOARDING.—THOMAS ADAMS (late S. Dare), Mahogany and Timber Merchant, Bermondsey New-road, Southwark, near the Bricklayers' Arms, begs to inform his friends and the trade generally, that he has in stock a large assortment of the above goods, fit for immediate use, at prices which only require a trial to prove their decided cheapness. Also mouldings prepared by machinery from the very best material, and in a superior manner; cut deals and scantling of every dimension; mahogany, cedar, rosewood, wainscot, elm, beech, oak, &c., in planks, boards, veneers, and logs; pantile, oak, and fir laths; wheelwrights' goods. All sawn and prepared goods (except timber) delivered free of expense; sawing charged at mill prices. Very extensive drying sheds.

MUIR'S PATENT PLANING MACHINE.
SAW MILLS, GILLINGHAM-STREET, PIMLICO.
TIMBER of any size, PLANK, DEALS, and BATTENS, &c., Sawn on the most approved principle. Boards, &c., Prepared, Matched, and Grooved, by Muir's Patent Machinery. The Mills have all the advantages of navigation and water-carriage, being connected with the Thames by the Grosvenor Canal. Goods fetched from the docks and carted home free of charge.
Address to HENRY SOUTHAM,
Saw Mills, Gillingham-street, Pimlico.
N.B. Estimates given for Sawing and Planing.

GENERAL WOOD-CUTTING COMPANY.—SAWING, PLANING, AND MOULDING MILLS, Belvedere-road, Lambeth, between the Suspension and Waterloo Bridges. SAWING and PLANING in all their branches executed with the greatest despatch and punctuality. A large Stock of seasoned and beautifully WORKED MOULDINGS, consisting of upwards of 100 different patterns kept constantly on hand; also an extensive assortment of dry prepared FLOORING BOARDS, of all qualities and at reasonable rates.

WOOD THOROUGHLY SEASONED in DAYS instead of YEARS, by DAVISON and SYMINGTON'S PATENTED PROCESS, at the Patent Desiccating Company's Establishment (for Seasoning, Sawing, and Planing Wood), at the Grand Surrey Mills, immediately adjoining the Commercial and East Country Docks, Rotherhithe. The new process ensures the entire removal of moisture, hardens the gums, prevents further shrinkage, and strengthens the fibre.—For scale of prices, or license to work the patent, or any further information, address, post-paid, or apply to
ANGUS JENNINGS, Secretary.
The Patent Desiccating Company's Offices are REMOVED from 26, New Broad-street to No. 41, GRACECHURCH-STREET, CITY.
The Company's Agents are—Mr. WM. LANE, Irwell-buildings, Manchester; and Mr. THOS. MILLIE, Kirkaldy.

A CARD.
WOOD and STONE CARVING COMPANY, for architectural and church decorations, altar and library fittings, hall, dining-room, and other furniture.—Show-rooms, 3, Arabella-road, Pimlico.
Manufactory, Thames-bank Depository, Randagh-road.

JORDAN'S PATENT MACHINE CARVING and MOULDING WORKS for WOOD and STONE, Belvedere-road, Lambeth, and 154, Strand.—TAYLOR, WILLIAMS, and JORDAN beg to call the attention of the building community to a new feature of their establishment, and, at the same time, to thank their numerous patrons and friends for the very liberal support they have lately experienced, which, they assure them and the public, it will be their constant endeavour to deserve, by giving their customers an increasing share of the advantages arising from the constant improvements in the machinery which they have just succeeded in applying to the production of the most intricate carving in Casu and other freestones, and in statuary marble.
T., W., and J. particularly solicit the attention of architects and builders to the fact that, by the use of this machinery, a very large saving, both of time and money, is effected,—so great, indeed, that in many cases they can deliver a well-finished article in Caen stone for less money than it can be obtained in cement, while their stone for less money than it can be obtained in cement, while their wood-carving will, in some cases, be found to come into close competition with the best kinds of composition ornament.—For prices and estimates apply at 154, Strand.

TESTIMONIAL FROM CHARLES BARRY, ESQ.
"Westminster, May 16th, 1842.
"Gentlemen,—In reply to your letter requesting my opinion of your patent Carving Machinery, I have much pleasure in stating, from an experience of more than two years, in its application to the production of the wood carvings of the House of Peers, and other apartments of the New Palace, at Westminster, that I am enabled to make the most favourable report concerning it, and to add that it has more than justified the favourable terms in which I recommended it in 1843 to her Majesty's Commissioners of Woods and Works for adoption.—I remain, Gentlemen, yours faithfully, "CHARLES BARRY."
"Messrs. Taylor, Williams, and Jordan."

TO ARCHITECTS.—COMPETITION AND OTHER DRAWINGS.

MR. THOMAS S. BOYS, Member of the New Society of Painters in Water Colours, and author of "The Picturesque Architecture of Paris, Ghent, Rouen, &c.," and of "London as it is," offers his services in Tinting Backgrounds, Landscapes, Perspective Views, Interiors, &c. From the long experience he has had in such subjects, he is fully aware of the points essentially necessary to be attended to. Drawings and designs lithographed in a superior manner.—Address, Mr. BOYS, 81, Great Titchfield-street, Oxford-street.

BUILDERS and CARPENTERS' IRONMONGERY WAREHOUSE, 18, Blandford-street, Manchester-square, leading out of Baker-street, Portman-square. Lists of prices may be obtained on pre-paid application.
JOHN and EDWIN YOUNG, Proprietors.

TO THE OWNERS OF SAW MILLS, PLANTATIONS and Collieries; to Builders, Millwrights, Engineers, &c.

IMPROVED CIRCULAR SAWS, Upright Saws, for timber and deal frames; Patent Tempered Machine Plane Irons, saw files, improved engineers' files; Patent Tempered Machine Knives, and cutters of all descriptions, made on the most scientific and economical principles, with dispatch, by BLAKE and PARKIN, the Meadow Steel Works, Sheffield.

LAP WELDED IRON TUBES.—W. H. RICHARDSON, Jun., and Co., MANUFACTURERS of every description of WROUGHT IRON TUBES for Locomotive and Marine Boilers, Gas, Steam, and other purposes.
PATENT TUBE WORKS, DARLASTON STAFFORDSHIRE

IRON FOUNDRY, 80, Goswell-street (late of Brick-lane, St. Luke's).—J. J. JONES having made great additions to his STOCK of PATTERNS, begs to inform the Trade, that he can now supply them with Plain and Ornamental Iron Columns Girders, Railings, Gates, Iron Coping, Balconies, Window Guards, Verandahs, Ornamental Staircase Panels, Iron Staircases, Tomb Enclosures, Trellis Panelling, Lamp and other Brackets, Cantilevers, Newel Bars, Water Closet Work, Area Gratings, Fly and other Wheels, Wheel Plates, &c.
BAKER'S OVEN WORK, Forge Backs and Troughs, Rain Water Pipes and Gutters, Sash Weights, Furnace Bars, Stoves, Ranges, &c., always in stock.

OLD-ESTABLISHED WHOLESALE IRONMONGERY WAREHOUSE, Kitchen-range, and Stove-grate Manufactory, 18, Cross-street, Walworth.

JOHN GRICE most respectfully solicits the attention of Architects, Builders, and Carpenters, to his Stock of Black and Bright Stoves, Kitchen Ranges, &c., &c.
Black Registers, from 6d. per in. and upwards.
Bright ditto with Black and Bright Bars, 2l. 10s. and upwards.
Self-acting Kitchen Ranges, with Oven and Back Boiler:—
3 ft., 2l. 8s. 3 ft. 6 in., 2l. 15s.
Elliptic Stoves, with double backs, 3d. per in.
All articles made on the premises and warranted, and delivered free of expense within five miles of London. Bell-hanging in superior style, hung in secret, 8s. per pull.

TO BUILDERS and CARPENTERS.—Elliptic Stoves, double backs, 3d. per inch. Registers, 6½d 7d., 8d. per inch.
Cottage Ranges, with Ovens and Boilers, 3 ft. 2 in. 40s.; 3 ft. 4 in., 42s.; 3 ft. 6 in., 44s.
Self-acting Ranges, with Circular Oven and Back Boiler, best Wrought Bars and Bright Fittings,
3 ft., £2. 18s. 3 ft. 6, £3. 7s. 4 ft., £3. 15s.
Best Patent Cut Clasp.

5d.	6d.	8d.	11d.	1s. 4d.	1s. 10d. per 1,000
3d.	4d.	6d.	8d.	10d.	20d.

Best Sheet Floor Brads 12s. 6d. per cwt.
Best Town Glue 38s. Do. Scotch, 32s. per cwt.
Best Patent Sash Line.

4s. 3d.	5s.	6s. 6d.	7s. 6d.	10s.	12s. per gross.
1	2	3	4	5	6

At F. R. WILLIAMSON'S IRONMONGERY and STOVE WAREHOUSE, 35, Chiswell-street, Finsbury-square.
Lists of Prices had on application at the Warehouse, or by letter pre-paid, inclosing postage stamp.—Warehouse closes at 7 o'clock

TO ARCHITECTS, BUILDERS, &c.

HAYWARD, BROTHERS, late R. HENLY and Co., WHOLESALE IRONMONGERS, and Manufacturers of KITCHEN-RANGES, STOVES, &c., 195, Blackfriars-road, and 117, Union-street, Borough.
Strong Self-acting Kitchen Ranges, with Back Boiler and Oven and Wrought Bars:—

3 ft.	3 ft. 3 in.	3 ft. 6 in.	3 ft. 9 in.	4 ft.
£3.	£3. 10s.	£3. 15s.	£4.	£4. 10s.

Henly's Patent Improved, with back Boiler and Wrought Iron Oven:—

3 ft.	3 ft. 3 in.	3 ft. 6 in.	3 ft. 9 in.	4 ft.
£5. 15s.	£6. 5s.	£6. 10s.	£7.	

Best Register Stoves, at 7d., 8d., and 9d. per inch.
Do. Elliptic do., at 3½d., and 4d. do.
Manufacturer of WOLFASTON'S PATENT REGISTER STOVES, a certain cure for SMOKY CHIMNEYS, and effecting a great saving in fuel. To be seen in use daily.
Orders from the Country, accompanied with a remittance or reference, will meet with prompt attention.

HOT-WATER APPARATUS.—The attention of architects, builders, and others is respectfully requested to BENJAMIN FOWLER'S superior method of heating churches and chapels, halls, staircases, conservatories, forcing and greenhouses, manufactories and warehouses, kilns, rooms for drying timber, &c., and every variety of purpose for which artificial heat is required. Within the last twenty years some hundreds of buildings have been heated upon this plan, and the parties for whom they were executed are constantly expressing their satisfaction, also their willingness to vouch for their efficiency.
BENJAMIN FOWLER, late of 83, Dorset-street, removed to the new factory, Whitefriars-street, Fleet-street.

TO ENGINEERS, BUILDERS, PLUMBERS, &c.

RAIN-WATER PIPES, Heads, Shoes, and Elbows, half-round and O G Gutters, Sash Weights, Railing Bars, Sink Gratings, Air Bricks, close and open Coal Plates, Scrapers, Tile Lights, Balcony Panels, narrow and quary wheels, &c.
CAST and WROUGHT IRONWORK for STABLE FITTINGS, viz.—Mangers, Hay-racks, Ramps, Sills, Stable Traps, Gratings, &c.
GAS and WATER-PIPES, bends, branches, Tee pieces, syphons, and lamp columns; also hot-water pipes for heating buildings and hot-houses, and FLANGE PIPES, with all the usual connexions. A large stock of the above CASTINGS at very low prices, at JONES'S, Iron Bridge Wharf, No. 6, Bankside, Southwark.

TO ARCHITECTS AND BUILDERS.

CHUBB'S WROUGHT-IRON and FIRE-PROOF DOORS and FRAMES, for strong Rooms. A large stock of the above, of all sizes, made in the best manner, and of different strengths, fitted with CHUBB'S PATENT DETECTOR LOCKS, throwing from two to twenty bolts, constantly on sale, at very moderate prices. FIRE-PROOF SAFES of every size, and Patent Detector Locks and Latches for all purposes.—C. CHUBB and SON, sole Manufacturers, 57, St. Paul's Churchyard, London.

MECHI, No. 4, Leadenhall-street, London, with his accustomed spirit, is determined that no one in the trade shall excel him in novelty, variety, quality, or price. His principle is to warrant every article, and to exchange or return the money for any found in the least defective. Many of his articles are manufactured on the premises, and most of his patterns are invented by himself. Owing to the increase of novelties in Papier Mache, Mechi has devoted additional show rooms to these manufactures, which the public are always welcome to inspect. His cutlery, strops, ladies' and gentlemen's dressing-cases, writing desks, work-boxes, and every article for the toilet and work-table, as well as for presents or for amusement, form a *tout ensemble* rarely to be met with. Mechi keeps working cutlers on the premises, so that every description of cutlery may be ground and repaired daily. Table cutlery, razors, strops, &c., for shipping. Dantelle tables for public rooms.

WORCESTER ENCAUSTIC TILE WORKS.—To clear the remainder of the STOCK the Proprietor has determined on reducing the price of ornamental pavements to 1s. a square foot.—Apply at the Works, Palace-row, Worcester.
N.B. Designs for pavements sent by post to suit the space intended to be covered, and the date of the building.

FIRE BRICKS.—To Builders, Gas Companies, Engineers, &c. &c. WARD and CO., Honduras Wharf, Bankside, have now on hand an extensive and well-selected Stock of every description of Fire Bricks, Lumps, Tiles, Clays, &c., used in Gas Works, Coke Ovens, Furnaces, Kilns, &c., which they are offering on very liberal terms to consumers, and the trade in general; also, Malm Paviors, Stock Bricks, Patent Malting Tiles, Pan, Plain and Ridge Do., Windsor and other Oven Tiles, Sand, Gravel, Lime, Cement, Windsor and other Loams, Red and White House Sand, Dutch Clinkers, Sanitary Pipes, and every article connected with general Building. Goods made to pattern on the shortest notice. Country buyers and consumers will find this the best and cheapest market.

TO ARCHITECTS, BUILDERS, AND RAILWAY CONTRACTORS.

BRICKS and TILES, plain and moulded, manufactured in a superior manner, from fine beds of clay on the Earl of Leicester's estate at Holkham, of red, blue, and Bath stone colours, both for plain and ornamental work. Specimens to be seen at Blashfield's Wharf, Commercial-road, Lambeth (near Waterloo-bridge), consisting of plain bricks of the usual size for building purposes, moulded bricks for forming Tudor chimney shafts, of various designs, label mouldings, cornices, copings, window sills, dressings for windows and doors, mullions, ridges, skirtings, &c. Also roofing and paving tiles of an ornamental character in the same materials. The moulded bricks are fully equal to the best specimens referred to under the articles "Brickwork," in Nos. 280 and 291, of "The Builder."

CHEAP ORNAMENTAL GLASS.—I beg to inform my friends and the public, that I have now completed a new ENGINE, and, owing to the facility with which I can execute orders, I am enabled to reduce my former prices considerably. The prices are now from ONE SHILLING PER FOOT SUP., and borders from SIXPENCE PER FOOT RUN. A large quantity of the cheapest patterns always in stock. Embossing and painted work on the most moderate terms.—CHARLES LONG, No. 1, King-street, Baker-street, Portman-square.—Cash only.

E. and W. H. JACKSON beg to call the attention of Builders and the trade to the reduced prices of their PATENT PLATE GLASS, which, from its cheapness, is now superseding crown in all respectable dwelling-houses. BRITISH and ROUGH PLATE, CROWN, SHEET, STAINED, and ORNAMENTAL GLASS, supplied of the best manufacture, and at the lowest terms. List of prices, estimates, and every information can be had on application at their warehouse, 315, Oxford-street.

PLATE GLASS.—THOS. MILLINGTON begs to inform the trade that he has now ready for Sale, a large quantity of BRITISH PLATE GLASS, which he can offer at the following low prices:—In sizes, under 1 foot super, 1s. 2d.; under 1 ft. 6 in., 1s. 6d.; under 2 ft., 1s. 9d.; and under 3 ft., at 2s. per ft. super. Also, Roughed Plate, in various substances, from 1-8th in. upwards. Observe the address—87, BISHOPSGATE-STREET WITHOUT.

THE UNION PLATE GLASS COMPANY beg to call the attention of architects, surveyors, builders, large consumers, and the trade generally, to the quality, colour, and substance of their highly-finished glass, and as the discounts vary according to size, they prefer giving a special estimate for each quantity required. To encourage the use of Plate Glass for glazing purposes, the price is considerably reduced, which will, for its durability and appearance, insure the preference to any other description.
ROUGH PLATE GLASS supplied for skylights, warehouses, workshops, and flooring, 3-8ths, ½, ⅝, and 1 inch thick.
London Warehouse, 99, Hatton-garden, Holborn.
H. CHRISTIE, Agent.

CHAS. WM. WATERLOW,
MANUFACTURER

of Sashes and Frames, and Joiner to the Trade, 121, Bunhill-row, Finsbury-square.—Well-seasoned materials, superior workmanship, lowest prices.—Upwards of 400 DOORS, and a large variety of Sashes and Frames, always on sale. Glazed goods securely packed for the country. Steam-struck Mouldings in any quantity.—N.B. This Establishment is worth the notice of all engaged in building.

By Her Majesty's Royal Letters Patent.

GLASS VENTILATORS FOR WINDOWS.

BAILLIE'S PATENT Transparent SLIDE VENTILATORS, supplied at a reduction of 40 per cent. from the original Tariff. Their extensive and successful application to public offices, bed-rooms, and the cure of smoky chimneys, prove their great utility. To be seen in action at Edward Baillie's Stained Glass Works, 128 Cumberland Market, Regent's Park.
Designs and estimates for church and ornamental windows forwarded on application as above, where specimens in every style are on view.

HURWOOD'S PATENT APPARATUS for MOVING and FASTENING WINDOWS, &c.
GENERAL DESCRIPTION.—This invention recommends itself in all its applications by its simplicity, efficiency, and certainty of action, and entirely dispenses with all pullies, weights, cords, springs, setops, fastenings, &c. A principal feature in the invention is the application of the screw, or worm working into a wheel or rack, as a prime mover. The apparatus moves with ease and certainty; is very durable, not likely to be out of order; is perfectly secure in every position, and is applicable to conservatories, French casements, folding shutters, stables, ventilators, skylights, ship scuttles, deck and stern lights, and to all descriptions of windows, and is particularly adapted to public buildings, where security is an important object, as in lunatic asylums.
Further particulars may be had upon application to the Patentee, and also the terms upon which licenses are granted.
*** Illustrative Catalogues may also be obtained from the Patentee, Ipswich, by inclosing twelve stamps, to cover postage.

UNDER ROYAL LETTERS PATENT.

GUTTA PERCHA COMPANY, PATENTEES, Wharf-road, City-road, London.—To Upholsterers, Cabinet and Picture-frame Makers, Decorators, &c.—The Gutta Percha Company are now enabled to supply a variety of Moulded Ornaments, suitable for the decoration of Cabinet Work, &c., &c., at prices which will secure to the trades a large profit. The great beauty of Gutta Percha Mouldings, surpassing even the most finely-grained wood, added to their remarkable durability and cheapness, is commanding for them an extensive sale.
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IMPORTANT to the SANITARY MOVEMENT.—PATENT FLUSHING SYPHON BASIN and SELF-ACTING CLOSET CONNECTION.—It is admitted by all, that nothing is more wanted than a trapped water closet, simple, cheap, and effective. The above invention will be found to combine these qualifications. It is complete in itself without expense of fixing. It has no metal spreader, metal trap, wires, or cranks. It directs the whole of the water with great force perpendicularly down the sides of the basin, clearing all before it. It is self-acting, and must cleanse itself on every time of using, without reference to the person using it, without unsealing the trap, thus rendering it particularly suited for asylums, hospitals, manufactories, &c. The price, fitted in stained woodwork, with strong well-glazed terra cotta stone pan, is only 2l. 5s.
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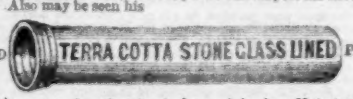
NOTED 

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